SURROUNDING THE FOUNDER: EXAMINING THE HIDDEN FIGURES OF ENTREPRENEURSHIP

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ABSTRACT

Travis Howell: Surrounding the Founder: Examining the Hidden Figures of Entrepreneurship[1]
(Under the direction of Chris Bingham)

Founders, as the initial architects of their organizations, receive a great deal of interest and attention in entrepreneurship research. Yet, there is still much we do not know regarding the constellation of other people surrounding the founder and supporting them throughout the entrepreneurial process. This dissertation includes three essays focused on addressing this neglected area of research, and examines various "hidden figures" which are rarely observed in entrepreneurial data and who seldom receive the same recognition as founders, but who still play a fundamental role in venture success. In the first essay, I uncover and introduce the concept of *co-creators,* or individuals and entities who hold no ownership stake in the business but still make a distinctive contribution in the earliest stages of founding a new business. The second essay examines the role of a *second-in-command*, or an individual who the founder hires later in the firm's life cycle to help manage the increasingly complex business. The third and final essay explores *coworking communities*, an increasingly popular phenomenon in which communities of founders interact with, learn from, and help one another. As a whole, these essays contribute by highlighting how the immediate context around founders can play a major role in determining venture success.

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To my family:
My wife, Noralin,
And my children, James, Reed, and Anna

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This dissertation is focused on various “hidden figures” in entrepreneurship; people who seldom receive the same recognition as founders but who still play an outsize role in venture success. As I think about this dissertation, I see many parallels. Though it is my name that appears as author, this dissertation would not be possible without the countless other people who supported and co-created it alongside me.

First, I want to thank my family. In particular, my incredible wife and partner, Noralin Howell. Neither of us really knew what to expect when I quit my job and we moved to North Carolina and started the PhD program, but she was nevertheless fully supportive and optimistic about everything. She never made me question the decision, and she has been with me through all the ups, downs, twists, and turns of the PhD journey. She has made everything in our life possible, which certainly includes this dissertation. My children, James, Reed, and Anna, also deserve thanks. All three are young enough that they have no memories of life before North Carolina and UNC. Although they really have no idea what I do when I go into work every day, they are always waiting when I come home with bright smiles, brightening up my day and giving me something to work for. Also, my parents. My mother, who has always believed in me and encouraged me to be my best self, and my father, a PhD himself who was the original inspiration for this career path.

Apart from my family, the main person that I absolutely must thank is my advisor, Chris Bingham. Before beginning the PhD program, many people told me that the difference between

loving and hating a PhD experience was largely a function of your advisor. Now, at the end of the program, I can attest that this is true. Luckily for me, I can genuinely say that my doctoral program has been an enjoyable and rewarding experience, which is due in large part to Chris's incredible support and dedication. He believed in me and my ability before I really even believed it myself, and he gave me numerous opportunities to prove myself. Rather than simply giving me tasks to do, Chris encouraged me to come up with my own ideas and solutions to problems, pushing me to develop my own identity as a scholar. I think it is safe to say that he has had a bigger impact on my career than any other individual.

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LIST OF ABBREVIATIONS

ACA	Affordable Care Act
ADR	American Depository Receipts
BHAR	Buy and Hold Abnormal Returns
CEO	Chief Executive Officer
COO	Chief Operating Officer
GCUC	Global Coworking Unconference Conference
IPO	Initial Public Offering
KFS	Kauffman Firm Survey
LBO	Leveraged Buyout
MBA	Masters of Business Administration
PSED	Panel Study of Entrepreneurial Dynamics
QCA	Qualitative Comparative Analysis
SD	Standard Deviation
SEC	Securities and Exchange Commission
TMT	Top Management Team
VC	Venture Capital

CHAPTER 1: INTRODUCTION

Past literature gives much attention to founders. This attention is well-deserved, as founders are the initial architects of their organizations and make many decisions that affect the procedures, policies, and culture of the organization throughout the duration of its lifetime (Simsek et al., 2015; Baron et al., 1999; Hsu and Lim, 2013; Beckman and Burton, 2008). Founder identities and decisions also define the core of the firm, including what markets to serve, what customer needs to address, and what capabilities and resources to deploy (Abell, 1980; Fauchart and Gruber, 2011). Thus, a better understanding of founders leads to a better understanding of organizations. As such, the founder role is one of the most studied topics in entrepreneurship, strategy, and organization theory (Klotz et al., 2014; Lazar et al., 2019; Knight et al., 2020).

Yet, founding a new venture generally cannot be done alone. Often there is a constellation of other people either directly or peripherally involved in helping founders throughout the entrepreneurial process. However, past studies pay less attention to these actors surrounding the founder and playing supporting roles. This dissertation aims to address this neglected area of research, and examines various "hidden figures," or individuals and entities who rarely appear in entrepreneurial data and seldom receive the same recognition, credit, or glory as founders, but who still play an outsize role in early venture success. For example, in the first essay, I introduce the concept of *co-creators,* or individuals and entities who hold no ownership stake in the venture but still make a distinctive contribution in the earliest stages of founding a new business. The second essay examines the role of a *second-in-command*, or an

individual who the founder hires later in the firm's life cycle to help manage the increasingly complex business. The third and final essay explores *coworking communities,* an increasingly popular phenomenon in which communities of founders interact with, learn from, and help one another. Overall, these three essays shed light on the immediate context surrounding the founder, examining the group of people involved in helping the founder succeed. I discuss each of these essays in more detail below (see Figure 1 for summary).

Essay 1

Though about half of all new ventures are founded by solo founders (Wasserman, 2012), the entrepreneurship literature has increasingly focused on founding teams (Klotz et al., 2014). This is perhaps not surprising, as teams provide a fertile ground for the study of the social processes that are of widespread interest both in management and in the social sciences more broadly (Aldrich and Martinez, 2003; Foo et al., 2006). As a result, founding teams are often of more scholarly theoretical interest than solo founders.

In addition, there are many theoretical and practical reasons for believing that founding teams are preferable to individual founders. Co-founders help accomplish the "enormous job of starting a new firm" (Eisenhardt and Schoonhoven, 1990: 510) by helping write code, craft strategy, chase leads, pitch investors, and support operations. Moreover, co-founders can share emotional drain, encourage and support, and complement deficiencies in a founding team in a way that may help ventures overcome their resource constraints faster and better. Given these benefits, many argue that the selection of co-founders is the singular most important decision in starting a new venture (Wasserman, 2012). As a result, much of the research in entrepreneurship to date has focused on founding teams, with a particular focus on how their initial inputs and

conditions (such as team demographics, composition, and prior experience) affect firm performance (Klotz et al., 2014).

However, while past literature pays much attention to the benefits of founding teams, it pays comparatively less attention to their shortcomings. The practitioner work that does exist suggests that co-founder challenges are a central cause for startup failure, and that up to 65% of startup failures are due at least in part to conflicts among the co-founders (Wasserman, 2012). In particular, co-founders often face role dilemmas (e.g., overlapping roles vs division of labor) as well as reward dilemmas (division of equity and control) that could exacerbate rather than mitigate the liabilities of newness and increase the chances of the venture imploding (Ensley and Pearce, 2001; Higashide and Birley, 2002; Vanaelst et al., 2006). Overall, cofounders bring many problems in addition to bringing resources.

Given that cofounders provide both advantages and disadvantages to a new venture, it is possible that solo founders can perform as well as co-founders under certain conditions. Although solo founders do not benefit from the human, social, and financial capital provided by cofounders, they do benefit from avoiding conflicts among cofounders, which may contribute to higher performance. Further, it may well be that some solo founders could address liabilities of newness through their existing resources or networks and so be less likely to need or want co-founders. The literature, however, is silent on this tradeoff. Rather, the number of founders is overlooked as the literature largely refers to founders as a collective, assuming away differences between single or co-founded firms. Such an omission is problematic because it obscures understanding of what form they take, how they combine together, or which are more unique or problematic for particular founder types.

The first essay addresses this gap by exploring the question of "*under what conditions can solo-founded ventures perform as well as co-founded ventures?*" Using data on 70 early-stage technology ventures (both solo-founded and co-founded), I build theory around how solo founders can mobilize resources in unique ways to overcome their resource constraints, and that in some ways, these strategies may even be preferable to bringing on cofounders. To do so, I use qualitative comparative analysis (QCA), an increasingly popular technique that bridges the divide between qualitative and quantitative research. This approach reveals synergistic relationships among variables, and allows the researcher to assess equifinality (i.e., multiple paths to the same outcome). Collectively, this study contributes to the literature by revealing that successful solo founders are not actually solo. Although they do not have *co-founders* in the traditional sense, solo founders rely on various *co-creators* as substitutes. I describe how these co-creators play vital roles in new ventures, and that without them, the founder either would likely have had to find a co-founder or would not have succeeded at all.

Essay 2

While the first essay examines founders at the early stages of the founding process, the second essay examines founders later in their firms' life cycles. Although there is an extensive literature on the Upper Echelons of organizations, the focus of these studies is generally on Fortune 500 firms and "professional" managers. Founders, however, differ from their non-founder counterparts across several key dimensions (Finkelstein and Hambrick, 1996: 107-108). Yet, most of the literature that examines founders does so in relatively small, private, and family run firms (Klotz et al., 2014). Comparatively little research goes beyond these types of firms, leaving many open questions as to how founders might govern in larger, more mature firms. The lack of research on this topic is problematic, as founder CEOs currently govern or have governed

many of the largest and most important firms in the world (Facebook, Amazon, Google, Apple, Microsoft, etc.). The founders of these firms often go from leading small, entrepreneurial ventures to leading large, multi-billion dollar firms within a span of a few years, and they often act, think, and behave very differently from their more "professional" counterparts. This essay takes important steps in understanding how these differences manifest in the structure of their organizations.

Specifically, this essay examines whether founders are more likely to have and benefit from a "second-in-command."[2] Prior research suggests that although founders possess the entrepreneurial skills required to lead a new venture, they are often ill equipped to handle the challenges associated with leading a larger, more complex organization (Boeker and Karichalil, 2002). Even more challenges arise as firms transition from private to public, including intensified regulation and scrutiny of the decisions made by top management. These challenges are often too much for a founder to handle, and thus founders are often encouraged to hire a second-in-command to compensate for their own managerial deficiencies.

Surprisingly, however, little is known about the prevalence of a second-in-command leadership structure for founder-led firms, or its influence on firm performance (if any). In this essay, I address these important gaps in the literature by exploring three key questions: First, *are founders more likely to have a second-in-command relative to other CEOs?* And second, *do founders benefit more from having a second-in-command relative to other CEOs?* Using a sample of more than 2,000 firms that went public from 1997-2013, I find evidence that founder

[2] One of the most prominent examples of this phenomenon is Sheryl Sandberg, the Chief Operating Officer of Facebook, who has played a key supporting role to founder Mark Zuckerberg in building the social media giant.

CEOs are more likely to have a second-in-command relative to professional CEOs, and that they benefit more from having a second-in-command.

Essay 3

Whereas the first essay focuses on the various co-creators supporting solo founders and the second essay examines how a second-in-command can support founder CEOs, the third and final essay explores *coworking communities* that support founders in coworking spaces. Coworking spaces are membership-based workspaces in which diverse groups of nontraditional workers (startup companies, small businesses, remote workers, freelancers, and independent contractors) work together in a shared, communal space (Spreitzer et al., 2015a:28). Mostly unheard of ten years ago, the global number of coworking spaces has grown dramatically in recent years. For example, the annual Global Coworking Survey (Deskmag, 2019) estimated that only about 160 coworking spaces existed in 2008, whereas in 2017 there were more than 13,800. As entrepreneurs (especially millennials) have been flocking to these spaces in droves, investors have also poured money into building these spaces. Overall, the rise of coworking is one of the most prevalent trends in recent entrepreneurial activity (Kreamer, 2012).

Although numerous entrepreneurial news sources have addressed coworking and attempted to advise founders as to whether coworking is right for them, these sources are often limited to anecdotal evidence, meaning more data and research is needed to advise entrepreneurs. Furthermore, understanding the impact of coworking is necessary as it has important policy implications. Because the coworking industry as we know it is relatively new, it has not yet gone through a full economic cycle. Once a recession or other shock occurs, the coworking industry will likely experience consolidation (Klepper, 1996). When that happens, many coworking spaces are currently funded either fully or partially by local governments, universities, and

corporations, and these stakeholders will be forced to decide whether these spaces are worthy of continual funding.

Overall, more data and analysis is required to understand whether coworking "works" for entrepreneurs. By collecting a large amount of both publicly available as well as proprietary data, this essay builds a foundation for research on coworking, the conditions under which it may improve entrepreneurial outcomes, and the various research streams it can enrich. I suggest that the most unique and influential aspect of coworking is not the *space* itself, but rather the *community* within the space. It is the community that often initially attracts entrepreneurs to the space, as it is the community that helps founders solve problems, give feedback and new ideas, or just simply provide friends and social support when times get tough. In short, this essay provides an initial overview of the coworking phenomenon, which is providing unprecedented ways for entrepreneurs to form communities with each other and thus interact with, learn from, and mimic their peers.

Overall Contributions

Recently, researchers are focusing increasingly more on the infrastructure and context around founders. For example, several studies have examined the idea of entrepreneurial ecosystems, showing how founders survive and thrive in some regions more than others (Spigel and Harrison, 2017; Spigel, 2017; Feld, 2012). While these studies validate that the context around the founder matters, these studies generally take a more macro view and focus on overall rates of founding and survival by region. Less attention is paid to the immediate context around the founder. In this dissertation, I shed light on this context that is often glossed over, taken for granted, or ignored. By bringing this context from the background to the foreground, this

dissertation advances knowledge around how founders succeed – not on their own, but with the help of others around them.

Specifically, the three essays included in my dissertation increase our understanding of the actors playing supporting roles in entrepreneurship. This again diverges from prior literature, as most prior studies tend to privilege *founders*, and thus pay less attention to other important contributors. My data and analysis, however, suggest that there is often a constellation of people surrounding the founder and co-creating the venture along with them. These hidden figures (i.e., co-creators, second-in-commands, and members of coworking communities) seldom receive the same recognition, credit, or glory as founders for creating the organization, despite playing an outsize role in venture success. Yet, they may very well represent much of the "X factor" in entrepreneurship (Saxton et al., 2016), accounting for much of the unexplained differences between successful and unsuccessful ventures.

One reason these hidden figures are understudied in prior literature is precisely because they are "hidden;" in other words, they are rarely observed in entrepreneurial data. Thus, another contribution of these studies is the considerable amount of data collected for each essay. In addition to the large amount of data collected, I also study these hidden figures using a combination of empirical techniques (including qualitative, quantitative, and mixed methods) and in a variety of contexts. This combination of detailed data, mixed methods, and various contexts produces knowledge that would not otherwise be possible and provides a rounded view of who helps founders build and nurture their organizations.

I structure the remainder of this dissertation as follows: First, I present each of the three full essays in order. I then offer some conclusions and discuss overarching insights from the

three essays. Tables, figures, appendices, and references for all essays are included at the end of the dissertation.

CHAPTER 2: CO-CREATORS VS. CO-FOUNDERS
HOW SOLO-FOUNDERS CAN PERFORM AS WELL AS CO-FOUNDERS

ABSTRACT

Research and practice suggest that co-founded ventures should generally outperform solo-founded ventures. Yet, little work has explored the conditions under which solo-founded ventures might perform as well as co-founded ventures. Using in-depth qualitative data on 70 entrepreneurial ventures, I address this gap. Our findings reveal how successful solo-founders strategically use co-creators rather than co-founders to overcome liabilities, retain control, and mobilize resources in unique and unexpected ways. Collectively, our findings add fresh contributions to the fields of entrepreneurship and strategy.

INTRODUCTION

As the original architects of their organizations, founders have a disproportionate and often long-lasting influence on their firms' structure, strategy, and capabilities (Nelson, 2003; Beckman and Burton, 2008; Beckman, 2006; Eisenhardt & Schoonhoven, 1990). One of the most crucial decisions a founder makes is whether to remain solo or use co-founders. This is a common and reoccurring question among prospective entrepreneurs, with many entrepreneurial blogs, news articles, and online community threads devoted to this topic, attempting to advise entrepreneurs on whether they need co-founders or should remain solo (e.g., Inc, 2014; TechCrunch, 2016; Forbes, 2016).

Yet, surprisingly, extant literature generally does not distinguish between ventures founded by a single founder and co-founded ventures. Rather, prior research largely refers to founders as a collective (Klotz et al., 2014), with the number of founders often being a control variable in the analysis (Ferguson et al., 2016; Ensley et al., 2002). Or, in many cases, authors are interested only in teams and thus solo founders are dropped from the empirical analysis altogether (Lazar et al., 2019; Beckman et al., 2007).

While prior research generally does not make the explicit distinction between solo- and co-founded ventures, there does exist a body of empirical evidence suggesting that larger founding teams outperform smaller founding teams on average (e.g., Chandler et al., 2005; Brinckmann & Hoegl, 2011; Jin et al., 2017; Agarwal et al., 2016; Ucbasaran et al., 2003; Feeser & Willard, 1990). The general logic is that more founders equals more resources (human, social, and financial capital) that should help the venture succeed. This is also consistent with several of the most prominent examples seen in practice, in that more "unicorns" – i.e., extremely high

performing new ventures such as Google, Apple, Microsoft, Facebook, Twitter, Intel, YouTube, Skype, Yahoo, Yelp- were started by co-founders than by solo founders.

Given these strong theoretical and anecdotal reasons for expecting co-founders to outperform solo founders, the notion that entrepreneurs need co-founders is becoming institutionalized in entrepreneurship. For example, many investors have explicit policies against funding solo founders. Venture capital firms, angel groups, and other investors often bet on the "jockey" (i.e., the founding team) rather than on the "horse" (i.e., the actual idea), and thus having a complementary founding team in place is important for investors (Bernstein et al., 2017; Kaplan et al., 2009; Lazar et al., 2019). Similarly, many accelerators and incubators rarely accept solo founders, believing it is too difficult to go solo (Cohen et al., 2019a). For example, Techstars (one of the largest and most prestigious accelerators) states on their website that "*while we don't screen applications just because they have a single founder, it does make things more difficult. We look for great, balanced teams who have a full range of skills. We strongly advise you to seek co-founders who balance your skillset*." These requirements by investors, accelerators, and others fuel demand for co-founders. Indeed, online "matchmaking" services now exist which pair co-founders by skill, personality, and entrepreneurial pursuits. As attention on co-founders increases in practice, the academic literature also reveals an increasing focus on teams rather than individuals, as noted in several recent review articles (see Lazar et al., 2019; Klotz et al., 2014; Knight et al., 2020). Overall, *the current conventional wisdom both in research and in practice is that entrepreneurs need co-founders.*

Yet, little work actually examines the counterfactual – i.e., the conditions under which solo-founded ventures might perform as well as co-founded ventures. This is especially problematic given recent work which suggests that although co-founders can provide resources,

they can also be a central cause for new venture failure. Wasserman (2012), for example, finds that up to 65% of startup failures may be tied to conflicts among co-founders. In particular, co-founders often face role dilemmas (e.g., overlapping roles vs division of labor) and/or reward dilemmas (division of equity and control) that can exacerbate rather than mitigate liabilities of newness (Stinchcombe, 1965; Hellman & Wasserman, 2016). Thus, on the one hand, co-founders provide resources that entrepreneurs desperately need, especially in the earliest days of a new venture. On the other hand, co-founder challenges can also be the primary source of failure. As such, it may be that solo founding is not only possible, but may even be preferable under certain conditions. As support, organizations such as Amazon, Dell, eBay, ServiceNow, FireEye, Tumblr, Mint, and RetailMeNot are all highly successful solo-founded ventures.

Overall, the distinction between solo-founded and co-founded ventures is both important and underexplored. I help address this gap by exploring the question of "*Under what conditions do solo-founded ventures perform as well as co-founded ventures?*" Given the lack of prior literature on this topic, I use in-depth qualitative evidence from 70 new ventures to explore the underlying *mechanisms* both solo and co-founded ventures use to overcome initial liabilities and achieve success. Specifically, I employ Qualitative Comparative Analysis (QCA), a configurational method that is uniquely designed to assess equifinality (i.e., the possibility that there are several unique paths to achieve the same outcome - Fiss, 2007). Given my research question, I am inherently interested in equifinality, as co-founding and solo-founding might lead to the same outcome under the right set of conditions. Collectively, my results reveal how solo-founded ventures use a nuanced set of *co-creators* rather than *co-founders* to mobilize resources in unique and unexpected ways. In particular, I introduce the concept of *benefactors* – outside parties who alleviate a major resource constraint for the entrepreneurs with no expectation of

compensation or reciprocation – and show how solo founders rely on them and other co-creators to overcome their unique liabilities. Together, these results combine to suggest that co-founders are not always required (as dictated by conventional wisdom), but rather that solo founders can find substitutes that provide many or all of the same benefits, while at the same time avoiding some or all of the costs. As a whole, my findings have important implications for the entrepreneurship and strategy literatures.

THEORETICAL BACKGROUND

New ventures often face severe resource constraints relative to more established and resource-rich incumbents, producing what Stinchcombe (1965) classically titled the 'liabilities of newness.' Prior literature suggests that if new ventures hope to survive, they must rapidly acquire or develop the resources enjoyed by incumbents in the same industry (Freeman et al., 1983; Mens et al., 2011; Clough et al., 2019). This is especially difficult at the earliest stages of a new venture, as the entrepreneur may have a rough version of an idea for a business but not enough legitimacy or proof of concept to attract investors (Singh et al., 1986). Thus, entrepreneurs must find alternative ways of mobilizing the human, social, and financial capital necessary for survival. One of the most common ways in which entrepreneurs do so early on is by partnering with *co-founders* (Wasserman, 2012),[3] who are willing to provide resources (i.e., human, social, and financial capital) in exchange for equity and voting rights of the nascent business.

[3]There are conflicting estimates on the proportion of ventures that are solo vs. co-founded. For example, solo founders account for roughly half of all founders in the Panel Study of Entrepreneurial Dynamics (PSED) and the Kauffman Firm Survey (KFS), whereas solo founders only account for roughly 10% and 16% of firms in Beckman (2006) and Wasserman (2012)'s respective datasets. These differences are likely due to the fact that the PSED and KFS are nationally representative and incorporate a wide variety of industries, whereas the Beckman (2006) and Wasserman (2012) datasets are concentrated in Silicon Valley and New England and include mainly high-technology ventures.

Given the importance of co-founders, many prior studies assess their impact on new ventures. Figure 2 provides a brief synthesis of this literature, detailing both the *advantages* of co-founders (i.e., what solo founders give up by not having co-founders), and also the *disadvantages* of co-founders (i.e., what solo founders avoid by not having co-founders). I discuss each of these in the subsections that follow.

Advantages of Co-Founders

Resources. Prior literature focuses primarily on the resources that co-founders provide (Chandler et al., 2005; Eisenhardt & Schoonhoven, 1990; Brinckmann & Hoegl, 2011; Jin et al., 2017; Agarwal et al., 2016). For example, co-founders can provide *human* capital to a venture by bringing needed skills, knowledge, or experience (Ucbasaran et al., 2003; Gruber et al., 2012). They can also provide *social* capital via more connections to potential customers, hires, or investors (Aldrich & Kim, 2007; Vissa & Chacar, 2009; Birley, 1985). In addition, they can provide valuable *financial* capital by personally funding the business until founders can find investors (Cooper et al., 1994). In short, individual founders often do not have enough time, expertise, connections, or funding to start a new firm by themselves, and so co-founders are frequently used to fill in those gaps.

Emotional/psychological support. In addition to providing resources, co-founders also provide other benefits in the form of emotional and psychological support. Founding a new venture is often an emotional roller coaster, with founders experiencing the highest of highs and the lowest of lows, sometimes within the same week or even in the same day. This can take a psychological toll on founders (Wasserman, 2012). This is especially true for solo founders, who must bear the burden of making difficult decisions and face the resulting consequences with no one else to blame or share responsibility (Aldrich et al., 2004). With co-founders, however, the

experience is different. Consistent with past research that provides evidence of bonding that occurs among people who experience a crisis together (McMillan & Chavis, 1986), co-founders are often uniquely able to support one another due to their shared experience. As Francis and Sandberg (2000:6) note, friendships within a founding team "may hold teams together and stimulate heroic efforts during difficult times." Some entrepreneurs may seek co-founders for these reasons alone even if they add few actual resources to the venture (Wasserman, 2012).

Disadvantages of Co-Founders

Coordination/monitoring costs. Despite the many benefits teams appear to have over individuals, prior literature also identifies several costs. For example, the literature on project-based teams finds that people tend to *overestimate* the efficiency gained from dividing work among team members, while *underestimating* the time required to integrate and coordinate that work (Staats et al., 2012). Orchestrating the sequence and timing of interdependent actions can be a burdensome task, and one that often requires a great deal of information exchange and mutual adjustment of action (Marks et al., 2001). In new venture teams, co-founders' coordination efforts can cause delays in important decisions around product development, market penetration, and organizational design (Zheng, 2012). Solo founders do not experience these same coordination costs that arise in teams.

Conflict. Though the coordination and monitoring costs of co-founders can result in inefficiencies, the costs resulting from intra-team conflict can be more damaging. There are several reasons why co-founders are highly likely to experience destructive relationship conflict[4]

[4] The team literature typically distinguishes between task conflict (differences in ideas, opinions, and viewpoints about task content) and relationship conflict (tensions, annoyances, disagreements, and personal incompatibilities) (Bradley et al. 2012). A moderate amount of task conflict is thought to be beneficial in new ventures, as a thorough, constructive discussion among co-founders regarding how to mobilize or allocate resources should generally

at some point (De Dreu & Weingart, 2003; Amason & Sapienza, 1997). First, co-founders must negotiate and divide roles, responsibilities, equity, and voting rights among themselves, requiring them to have open conversations with each other regarding whose skillsets and contributions are more valuable to the venture (Jung, Vissa, & Pich, 2017; Wasserman, 2012). Second, the long-term and high-stakes nature of co-founding relationships makes them different from other work-type relationships and more prone to conflict. In fact, many entrepreneurs use the analogy of a marriage in describing their co-founding relationship, as they worry about how to properly raise their 'baby' (startup), plan for the future, fight over finances, and try to not lose motivation or commitment when times get tough. This can be difficult, as co-founders spend countless hours working together and making many important, long-term, and high-risk decisions, often under great levels of stress and uncertainty. As a result, they often do not have the time or mental energy to properly resolve their internal conflicts, allowing them to fester and accumulate until it reaches a tipping point where the team disbands or the venture fails (De Jong et al., 2013).

Thus, on one hand co-founders can provide both resources (i.e., human, social, and financial capital) and emotional/psychological support that entrepreneurs desperately need early on in the life of a new venture. On the other hand, the coordination/monitoring costs and destructive team conflict can also be a primary source of failure. Thus, when taking a holistic view of the literature, it becomes less clear that co-founding is always a favorable strategy. Instead, it is likely the case that solo founders can perform as well as co-founders under the right conditions. In the analysis that follows, I explore these conditions under which it is possible to succeed as a solo founder, and when it is best to find co-founders.

promote higher-quality decisions (De Jong et al., 2013). Unfortunately, however, high amounts of task conflict tend to lead to relationship conflict, which is almost always destructive.

METHODS

I use fuzzy-set qualitative comparative analysis (QCA) to examine my question of interest. QCA differs from conventional linear regression in both its objectives and its means (Misangyi et al., 2017). Linear regression isolates independent effects of individual variables, and thus assumes linearity, additive effects, single paths, and competing explanations among independent variables. QCA, in contrast, reveals synergistic relationships among variables that combine in complex ways to explain an outcome (Ragin, 2000; 2008; Fiss, 2007). It also allows for the modeling of equifinality – the principle that multiple alternative solutions can lead to a given outcome. This is particularly appropriate in my study, as founders may be able to overcome their liabilities in a variety of ways, implying there is not one path to success. Finally, because QCA is a logical, not statistical method, it is particularly useful for moderately sized samples. My sample meets the criteria generally used for QCA studies (Rihoux & Ragin, 2008), namely (1) variance in outcomes (high-performing vs. low-performing ventures), (2) variance and commonalities across venture characteristics, and (3) an intermediate-N design that allows the researchers to have an in-depth familiarity with the individual cases. Overall, a qualitative approach such as QCA has distinct advantages, as my data allow me to gain a deeper understanding of the underlying *mechanisms* by which solo and co-founded ventures overcome their unique liabilities and achieve success. In the sections that follow, I first describe my sample and data, followed by an explanation of my analytic approach.

Sample and Data

I rely on data from ventures in three start-up facilities (one incubator, one coworking space, and one entrepreneurial support foundation[5]) based in the same metropolitan area in the United States. These facilities are distinct and separate organizations, yet they are all part of the same entrepreneurial ecosystem and the managers of each facility know each other and often coordinate activities and initiatives. I focus on the venture level of analysis and follow prior qualitative studies (Cohen et al., 2019b; Davis & Eisenhardt, 2011; Hannah & Eisenhardt, 2017) by using a "homogenous" sampling strategy to ensure that the ventures in my sample had certain theoretically relevant conditions. For example, the similar location of ventures ensured that they experienced many of the same liabilities in obtaining human and financial capital (e.g., founders often mentioned how the area lacked the venture funding and technical talent found in Silicon Valley). I further reduced extraneous factors by focusing on high growth technology and consumer product startups. This eliminated pure inventors, freelancers, or independent contractors who experience different liabilities and capital constraints as they focus only on the development of ideas or services to sell. With these criteria, I worked with the directors of each facility to identify both solo-founded and co-founded ventures affiliated with their organizations.

The central unit of analysis is a new venture. My sample consists of 38 solo-founded ventures and 32 co-founded ventures, for a total of 70 ventures. Past research suggests that this number of cases is ideal for QCA (Ragin, 2000; 2008), as it is small enough to allow for an in-depth familiarity of each case but large enough to allow a systematic investigation of the relationships that emerge from the data. Each observation consists of semi-structured interviews

[5] The foundation is a non-profit organization that provides mentoring and grant money to early-stage entrepreneurs.

with the founder(s) of each new venture, supplemented and triangulated by rich archival data from various other sources, as discussed in more detail below.

The interviews represent the primary data source (106 interviews in total). These interviews generally lasted 30-60 minutes, with an average of 45 minutes. I followed an interview guide, which I modified throughout data collection to address emerging themes. Each interview had three parts: (1) background information on the venture and founder, (2) company history, and (3) direct questions related to being a solo founder or co-founder. For the company history, I asked informants to walk me through a timeline of specific actions, events, and facts that focused on the early days of the company. For example, I asked: How did you come up with the idea? What have been the main milestones? What have been low points? What people or organizations have been especially crucial in your company's development? Why did you decide to [solo-found or co-found]? From this initial narrative, I probed for further information related to the events and people who played the biggest roles. These follow up questions focused on specific liabilities and challenges that founders faced, and how they were able to overcome them. Together, these questions enabled rich accounts of the events that took place over time, and recounting these events chronologically helped reduce individual informant bias while allowing for comparability across informants (Huber & Power, 1985; Bingham & Eisenhardt, 2011).

For solo founders, I asked additional questions specifically related to being a solo-founder. For example, I probed as to why they started the company alone and whether they tried finding co-founders, what they viewed as the main advantages and disadvantages of being a solo founder, times they wished they had co-founders, and how they coped during those times. For co-founders, I asked questions such as whether they had considered going solo, what types of disagreements or challenges they had with their co-founders, and how they allocated roles, titles,

and equity. The use of both nondirective and directive questions at different points during the interview helps to ensure a higher level of accuracy and truthfulness of responses by reducing the effects of priming (where informants feel as though they need to answer a question in a certain way) (Bingham et al., 2019; Bingham & Kahl, 2014). I also added extra interviews and sent follow-up emails to fill gaps in the chronology and improve completeness.

Further, I triangulated this retrospective data from my interviews with rich and real-time archival data (Eisenhardt & Graebner, 2007; Yin, 2009) from surveys and applications provided by the coworking space, incubator, and entrepreneurial support foundation. Each of these organizations performs an annual survey of their ventures to collect information on revenue, funding, job creation, and other metrics. I used data from these surveys to supplement information from interviews and obtain outcome data (Cohen et al., 2019b). The incubator and support foundation also required entrepreneurs to submit detailed applications to their organizations. These applications provided information on company history, key milestones, traction with customers, and other details. I also relied on company websites, media reports, press releases, social media, and internal documents to provide an additional check against the accuracy of responses received in the interviews. Overall, these added data sources supplement the interviews and provide a further check on the accuracy of the data, improving the reliability and credibility of my results (Yin, 2009; Eisenhardt & Graebner, 2007).

QCA Analysis: Calibration

The first step in performing a QCA analysis is to calibrate set membership. The goal of calibration is to separate cases into meaningful groupings (Ragin, 2008). To do so, the researcher selects an outcome and then several explanatory conditions that explain variance in that outcome. Once the outcome and explanatory conditions are selected, the researcher assigns values ranging

between 0 (indicating the absence of a given condition) and 1 (indicating the presence of the condition) to each case for each condition. These conditions can be "crisp" (i.e., dichotomous) where all cases are identified as being "fully in" (coded 1) or "fully out" (coded 0). Alternatively, conditions can be "fuzzy", where each case can be assigned values between 0 and 1 depending on degree of membership. I use both crisp and fuzzy coding in the analysis. The subsequent sections provide more details on the calibration of the outcome and explanatory conditions.

Outcome

Given my research question explores the conditions under which solo-founded ventures perform as well as co-founded ventures, the outcome for my analysis is venture performance. Following prior literature (Dencker & Gruber, 2015), I relied on financial performance – specifically, amount of annual revenue – as the outcome variable. Revenue may not always be a perfect measure of venture performance, as some ventures may experience success in another metric (e.g., a large user base, patent approval) with no corresponding revenue (Wiklund & Shepherd, 2003). To examine whether this was the case, I examined multiple data sources (interviews, surveys, applications, company websites, etc.) and found that this did not occur for the ventures in my sample. In other words, none of the 70 ventures in my sample had experienced notable success along other metrics such as user acquisition without also receiving revenue. As such, I believe revenue is an appropriate way to classify successful and unsuccessful ventures in my sample, as it represents a relatively "clean" and meaningful measure of venture performance that signals success in meeting market demand (Dencker & Gruber, 2015). Further, it is also frequently used as a basis for valuation, as startups are often purchased using revenue multiples (Damodaran, 1999; Medium, 2018). As one interviewee said, "*all that matters is revenue…that's the metric that's important*."

On average, the ventures in my sample had been operating for about four years and had varied amounts of success. Some ventures had been struggling with product development or finding customers, and thus either had no revenue or very little revenue (i.e., under $10,000). These ventures, which accounted for roughly 25 percent of the sample, were coded as (0) for the outcome. The remaining ventures had experienced more success, but to varying degrees. I code the outcome as (1) if the venture was earning at least $1 million in annual revenue. I selected $1 million as the appropriate benchmark as the interviewees frequently mentioned it as a major milestone, and it is sometimes referred to in practice as the "magic number" that early-stage technology startups strive to reach (Inc, 2017; Forbes, 2015; CNN Money, 2011). I then coded the remaining firms as follows: (0.75) if between $500,000 and $1 million, (0.50)[6] if between $100,000 and $500,000, and (0.25) if between $10,000 and $100,000.[7]

Explanatory Conditions

After calibrating the cases based on the outcome, the next step in QCA is to determine which factors lead to higher levels of the outcome and which lead to lower levels of the outcome. These factors are referred to as "explanatory conditions," or conditions that explain variance in the outcome (similar to independent variables in statistical analysis). Unlike quantitative analysis

[6] Following Ragin, Drass, and Davey (2006), we input values of 0.501 in the QCA software program. This is necessary as cases with condition values of 0.50 are automatically dropped during the analysis.

[7] These last three cutpoints were driven primarily by practical considerations, as some of the annual surveys did not collect exact amounts of annual revenue. Rather, fearing that founders would not be comfortable providing exact revenue amounts, the survey administrators provided ranges of revenue ($100,000 to $500,000, $500,000 to $1 million, etc.) and asked founders to select the range that encompassed their annual revenue. As a robustness check, we re-performed the analysis using another coding structure for the outcome. Following prior QCA studies (Fiss, 2011; Dwivedi et al., 2018) we coded all ventures as (0) if their revenue was below the median amount ($153,600 in my sample). We then coded all ventures in the upper quartile (i.e., ventures with more than $750,000 in revenue in this case) as (1), and set the crossover point was the mid-point between the two breakpoints, consistent with prior studies. For cases where we did not have data on the exact amount of revenue but did have information on the range of revenue (i.e., between $500,000 and $1 million), we made the simplifying assumption that their revenue was at the midpoint of this range. Results remained similar using this alternative coding structure, implying that the analysis was not overly sensitive to our coding of the outcome.

that calculates the marginal effect of each individual variable, QCA is a configurational approach that examines all possible *combinations* of variables. As such, each additional variable added to the QCA analysis increases the number of combinations exponentially (i.e., 2^k where k equals the number of conditions). Due to these limitations, a large number of control variables is neither possible nor desirable when using QCA (Misangyi et al., 2017). Rather, scholars use both extant theory as well as in-depth knowledge of the cases at hand to determine which factors are most important and should be included in the model. Thus, like others (Crilly, 2011; Crilly et al., 2012), I selected explanatory conditions for the sample using an *inductive* approach (i.e., deriving conditions from a mix of extant theory, empirical observation, and theory generation/elaboration) rather than a *deductive* approach (i.e., deriving conditions solely from extant theory) (see Misangyi et al., 2017). To do so, I analyzed each case carefully to gain a thorough understanding of which conditions might be associated with higher levels of the outcome and which were associated with lower levels.

Given my research question seeks to understand the conditions under which solo-founded ventures perform as well as co-founded ventures, my analysis focused on comparing these two groups. First, I compared them in terms of the unique liabilities of newness they faced. I focused explicitly on the themes recurrent among interviews with solo founders that were absent among interviews with co-founders, and vice versa. After obtaining a general understanding of the unique challenges for each group, I then performed a within-comparison of each group. In other words, I compared successful solo founders to unsuccessful solo founders and successful co-founders to unsuccessful co-founders, focusing specifically on the strategies used to mobilize resources. This excluded strategies such as forming a board of directors, as both the successful and unsuccessful founders in the sample employed these strategies. After comparing the

successful solo founders with the unsuccessful ones, I then compared the successful solo founders with the successful co-founders to assess whether these were strategies common to all successful ventures regardless of founding type or whether they were strategies unique to one founding type. This inductive analysis resulted in eight conditions that appear to explain the performance differences between solo- and co-founded ventures. I describe my calibration of each condition below.

Co-founders. The first explanatory condition is whether the venture was founded by a solo founder or a team of co-founders. I code this condition as (1) if the venture was co-founded, and (0) if it was solo-founded.

Alliances. An alliance is typically defined as "any independently initiated inter-firm link that involves exchange, sharing, or co-development" (Kale, Dyer, & Singh, 2002:748). This encompasses arrangements such as joint ventures, marketing agreements, or R&D/production agreements. Forming alliances is a strategy that entrepreneurial firms can use to mobilize resources (Moghaddam et al., 2016), though empirical findings are mixed regarding its effects on performance for new ventures. Some results suggest the effect is negative as new ventures may be unfairly exploited in alliance relationships (Alvarez & Barney, 2001; Gomes-Casseres, 1997), whereas others suggest the effect is positive as alliances provide access to the partners' skills, knowledge, and resources, while still preserving control and flexibility (Harrison et al., 2001; Moghaddam et al., 2016). Many of the successful solo founders in the sample opted to form alliances with other organizations rather than partner with co-founders. I code this condition as (1) if the data revealed that the venture had an alliance partner, and (0) otherwise.

Employees. Some of the founders chose to hire employees from the outset of their venture rather than bring on co-founders. Although some similarities exist between co-founders

and early employees, I include this as a separate condition as both extant research and my interview evidence suggests major differences exist between the two groups. One important difference is the structure of compensation, as co-founders generally receive a substantial portion of equity and voting rights. In contrast, employees generally have a more "traditional" compensation structure that is comprised of salary and benefits (though sometimes accompanied by a small portion of equity). In addition to these structural differences, however, there are also important differences in the nature of the individuals. For example, in a survey of over 4,000 individuals, Roach & Sauermann (2015) find that founders differ substantially from "joiners" (i.e., early startup employees) in terms of preferences for autonomy, levels of risk tolerance, and other attributes. Finally, and in addition to these fundamental differences in nature of co-founders and employees, the relationship between a founder and co-founder differs from that between a founder and employee. For employees, the job is often just that; a job. Co-founders, however, spend much more time together "in the trenches" (as described by interviewees), working long hours and making difficult decisions. I code this condition as (1) if the founder hired employees at the beginning of the venture, and (0) otherwise.

Benefactors. The concept of a benefactor is something that emerged from the interview data. By benefactor, I refer to an outside party who alleviates a major resource constraint for the entrepreneurs with no expectation of compensation or reciprocation. Benefactors are distinct from investors – while investors provide resources to a new venture with an expectation of a return on investment, benefactors provide resources simply as a favor to the entrepreneur. Though not discussed in prior literature, these benefactors seemed to play a key role in helping founders overcome their liabilities of newness (I provide more details and examples of benefactors when discussing results). To calibrate this condition, I first developed a list of

examples from my interviews where individuals provided human, social, or financial capital to an entrepreneur with no expectation of compensation or reciprocation. I then wrote summaries describing who they were and what they provided to the entrepreneur. I then sent these summaries to three entrepreneurship scholars who had previously been entrepreneurs and asked them to rate whether these potential benefactors alleviated a major resource constraint for the entrepreneur (measured on a seven-point Likert-type scale that ranges from 1 = "strongly disagree" to 7 = "strongly agree"). In cases where the average rating was 6 or above (i.e., reviewers agreed that the benefactor alleviated a major resource constraint), I code this condition as (1). I code the condition as (0) if the average score was 2 or below (i.e., reviewers disagreed that the benefactor alleviated a major resource constraint). In four cases, the average fell between 2 and 6, indicating a level of ambiguity in whether the benefactor alleviated a major resource constraint. I allocate partial membership (0.5) to these ventures.

Emotional support network. As discussed earlier, prior literature suggests that in addition to providing resources to a new venture, co-founders also provide emotional and psychological support (see Figure 2). The solo founders in my sample often struggled with a lack of emotional/psychological support during the ups and downs of starting a new venture. To compensate, they sometimes created an emotional support network, a concept that does not appear in prior literature but rather emerged from the interview data. By emotional support network, I refer to individuals who provide the entrepreneur with emotional and psychological support during the founding process. In my data, this most commonly consisted of (1) a spouse, (2) peer founders in a coworking community, or (3) mentors or advisors with whom the founder would meet on a regular basis. To calibrate this condition, we created a discrete ordinal “support index” that ranges from 0 to 3: 0 if the founder has none of these three types of supporters, and

adding one for each they do have, for a maximum value of 3 (for co-founded ventures, we calculate this index for each individual co-founder and then take an average). We then code this condition as (1) if the support index equals three, (0.66) if it equals 2, (0.33) if it equals 1, and (0) if it equals 0.

Serial founder. Prior research finds that serial founders, or individuals with prior experience in founding new ventures, are more successful on average than other entrepreneurs (Delmar & Shane, 2006; Eesley & Roberts, 2012; Lafontaine & Shaw, 2016). The reasoning is that serial entrepreneurs have both valuable experience (in creating products, recruiting talent, raising funds, and structuring roles and incentives) as well as relationships (with investors, key industry players, etc.) that should increase the venture's chances of success. Several of the successful solo founders in my sample were serial founders. I code this condition as (1) if the founder(s) had previously founded a venture that was acquired by another company, and (0) otherwise.

Product expertise. In analyzing the interview data, it became clear there was a distinction between founders who possessed the human capital necessary to develop their product in-house and those who did not. The latter group was forced to hire outside parties to develop the product (Colombo & Grilli, 2005) and often experienced deep frustration with product development. Overall, they were subject to more challenges and liabilities of newness relative to founders who possessed the expertise to develop the product themselves (as we explain more in our results). We code this variable as (1) if the venture developed the initial product entirely in-house, (0.5) if the founders outsourced part of product creation to outside parties, and (0) if the founders outsourced all part of product creation to outside parties.

Conflict triggers. After comparing the successful and unsuccessful co-founders in my sample, it became clear that an important distinction was the level of conflict experienced within the founding team. Conflict is inherently difficult to measure[8], and as such, I took a multi-stage approach to assess it. I first reviewed prior literature on founding teams as well as my interviews with co-founders to determine which factors have the most potential to trigger *relationship* conflict (i.e., destructive conflict) within a founding team. This excludes factors such as team functional heterogeneity, which past research suggests is associated with moderate amounts of *task* conflict that might actually benefit the venture (Beckman & Burton, 2008; Beckman et al., 2007; Eisenhardt & Schoonhoven, 1990). This review resulted in a list of seven key factors that prior literature and/or my interview data indicates are associated with the potential for destructive conflict. These include factors such as differential commitments to the venture, the lack of a clear leader, or lack of prior shared work experience (see Table 1 for a full summary). I then created a discrete ordinal "conflict index" that ranges from 0 to 7: 0 if the founding team exhibits none of the conflict triggers listed in Table 1, and adding one for each of the conflict triggers that the venture does exhibit, for a maximum value of 7. The average score for co-founded ventures was 3.8, with a standard deviation of 1.6. To calibrate this measure for the QCA analysis, I follow prior research (Mellewigt et al. 2018) and code a case as (1) if the conflict index was greater than one standard deviation above the mean, and (0) if the conflict index was lower than one standard deviation below the mean, and used the mean as the crossover

[8]Team conflict is dynamic and endogenous with firm performance, in that conflict may cause bad performance but bad performance may also cause conflict. While this is a qualitative study and our purpose is not to identify causality, we still wish to address this point of endogeneity as much as possible in our coding of the conflict variable. Thus, rather than coding the amount of conflict that the team experienced over time, we count the number of conflict "triggers," which are structural features of the team that represent input factors at the beginning of team formation (see Table 1). As such, the endogeneity of conflict and venture performance is less of a concern as our coding of this condition is driven by initial team structure (i.e., the number of conflict triggers), and thus not driven by subsequent bad performance.

point. I code this condition as (0) for all solo-founded ventures, as there are no additional founders with whom to experience conflict[9]

QCA Analysis: Specifications

After coding all conditions for each venture, the next step is to create a "truth table" that lists all possible combinations of the explanatory conditions (see Table 2). The purpose of this truth table is to identify configurations of conditions that are consistently associated with the outcome (Ragin, 2000; 2008). To streamline the analysis and focus only on the relevant combinations, I follow past research (Bell et al., 2014; Mellewigt et al., 2018; Dwivedi et al., 2018) and delete all combinations that are not associated with at least one case in the sample. I also follow recent QCA research and set the consistency threshold (which measures the degree to which a combination of causal conditions is reliably associated with the outcome of interest) as 0.80, the standard threshold for consistency scores (Ragin, 2008; Misangyi & Acharya, 2014). Finally, I apply the truth table algorithm (Ragin, 2008), which simplifies the causal combinations and leads to a more parsimonious set of results. Like others (Gilbert & Campbell, 2015; Misangyi & Acharya, 2014; Crilly et al., 2012), I report both the intermediate and parsimonious solutions.

RESULTS

The analysis resulted in four different configurations associated with high performance. Table 3 displays these configurations, along with the configurations associated with low

[9] For robustness, we excluded each of the seven items in the conflict index one at a time and re-performed the analysis. Results remained similar, indicating that the analysis is not overly sensitive to any one of these seven items.

performance[10]. Each column represents a distinct configuration, or a distinct path to the specified outcome. Using examples from my interviews, I explain below how each of these configurations can lead to high performance.

Pathways Leading to High Performance

Pathway to high performance #1. At a high-level, the first pathway to high performance is broadly consistent with prior literature, in that it shows how having co-founders is one way entrepreneurs overcome liabilities and mobilize the necessary resources to achieve high performance. I found much evidence of this in the data. In fact, many of the co-founders I interviewed did not believe it was wise or even possible to be successful as a solo founder and did not understand why anyone would ever try, saying "*I don't understand anybody who's a single founder…you need to have the right kind of people there*," or "*I think starting a business without a partner…is insane…I would just go nuts without having someone to bounce everything off of, and to decide critical decisions with*." In general, the co-founders in my sample provided much of the resources and emotional/psychological support discussed in prior literature (see Figure 2).

Although this configuration is broadly consistent with prior studies that find a positive relationship between the number of founders and firm performance, the results also suggest that this relationship is more bounded or nuanced than typically acknowledged in the literature. In particular, co-founded ventures only experienced high performance when conflict triggers were absent. For example, one venture included four co-founders, two of whom were from (and

[10] Unlike statistical analysis, QCA is not symmetric, meaning that the researcher must not only analyze the configurations that lead to the presence of the outcome (i.e., high performance) but also the configurations that lead to the absence of the outcome (i.e., not high performance), as they may be different. In our case, however, the configurations that led to low performance exhibit fewer clear patterns and are approximately a mirror image of those configurations that led to high performance, and thus we do not discuss them separately.

worked in) the United States and the other two from (and worked in) Uganda. They never chose a clear leader and instead decided they wanted "*to make decisions unanimously, collaboratively*". This sounded nice in theory, but ultimately triggered conflict and resentment when the venture faced important decisions. For example, when they were preparing a funding application, they had fundamental disagreements about what information to include. These disagreements were never resolved, and the founder who ultimately submitted the application on the day of the deadline had to do so without the full support of the team. In addition, the cultural and locational differences between the American and Ugandan founders also came into play. For example, there was a fifth individual in Uganda who was marginally involved in the business and who would sometimes provide advice and connections. The American founders simply considered him an advisor, but the Ugandan founders wanted to grant him the founder title along with equity and voting rights. As one of the American founders shared:

> "*From a US perspective, he very much is stereotypical advisor role…But my teammates want to consider him a founder because the way they're seeing it in Uganda, they're like, 'Oh he's done so much for them. We need to respect him. We need him on our side to be successful with this thing.' And so there's been a lot of debate about whether he should [receive equity and voting rights]*."

In another co-founded venture, one founder was working full-time to develop the product and gain access to customers, whereas the other two kept their full-time jobs and put in minimal effort in the evenings. The full-time founder began to resent her other co-founders for their lack of effort, which amplified conflict stemming from other sources such as decisions around which customers to target. This founder shared with me her frustration and hopelessness she had felt with her team, saying "*it's been an eye-opening experience…[it's been] one of the hardest things.*" Other founders I interviewed expressed similar feelings, describing how co-founders can sometimes cause more problems than they resolve. As one founder put it, "*I think having more*

people is great…but people are people. And people, sometimes, are in better moods than others. And some of them bring an additional component of complexity."

In addition, configuration 1 suggests that "product expertise" is another core condition in this configuration, implying that only ventures who have co-founders with product expertise are those who experienced high performance. This implies that co-founders are most useful when they have complementary skillsets and provide the venture with a full range of skills needed to manage the organization (Beckman et al., 2007; Foo et al., 2006). For example, one founder was building an internet company and described how although he had a background in design, he did not have the technology or sales experience required to build a successful internet venture. As a result, he sought out two co-founders (one with a computer science degree from Stanford and another with sales and marketing expertise), which "*rounded out the skillsets and would allow us to build anything, sell anything…,*" ultimately leading to a well-received product and a high-performing venture. Other teams, however, were not quite as fortunate. For example, one venture had three co-founders attempting to build a new type of software. The problem, however, was that none of them knew anything about creating software. As one said *"[None] of us have ever been in the technology realm. None of us have any technical experience whatsoever. We're growth and marketing people*." They cobbled together an early version of the product using outside contractors and hoped to find investment and then hire technical talent. But, investors understandably felt hesitant to invest in a startup in which the founders knew little about how to create their product. These founders struggled to make progress, and ultimately experienced sub-par performance. Overall, when co-founders all possessed the same skillset, they experienced many of the same challenges as solo founders.

As a whole, this first configuration is partially consistent with the conventional wisdom that co-founders add value (Beckman et al., 2007; Eisenhardt & Schoonhoven, 1990; Wasserman, 2017). However, it also bounds this prior work by suggesting two other required conditions, namely: absence of conflict triggers, and the proper skillsets. In contrast, the next three configurations represent three unique paths founders can take to achieve high performance even *without* co-founders.

Pathway to high performance #2. The founders in Configuration 2 are characterized by three conditions: alliance partners, an emotional support network, and low levels of conflict triggers. Notably, Table 3 shows that co-founders are not a necessary condition in this configuration. Instead, this condition is blank, indicating that co-founders were not necessary for these founders to achieve high performance.

Although the solo founders in this configuration did not have co-founders, they did form alliances with other organizations to gain access to the human, social, and financial capital they needed. A few examples help illustrate this pathway. In one case, a founder started a new EdTech venture that developed software. Although this founder had a great deal of technological expertise and was able to develop the product himself, he lacked social capital in that he had no connections to school districts. He also lacked human capital in that he had little experience with sales. Rather than bring on a co-founder who had these connections and skills, this founder partnered with another venture that already sold a portfolio of products to school districts. Under their agreement, the other venture included the solo founder's software in the portfolio of products that it offered school districts. When I asked why he did not partner with co-founders, he said, "*there's other ways that you can tackle it… With the [alliance] I have, people are going out and selling…they're carrying out that function…it's just not as a partner in my business.*"

In another example, a founder shared personal ties with a well-known YouTube celebrity. This celebrity offered to market the founder's products on their website and social media channels in exchange for a portion of the revenue. The founder described how "*they announced it on their show… [and when] I woke up at seven in the morning, everything was sold out.*" The solo founder later co-branded the venture's product with the celebrity, leading to a huge initial demand for the product, and bringing in enough cash flow that it allowed the founder to grow her venture without additional funding or partners. The celebrity also became more excited about the product after observing the initial enthusiasm of viewers, and as a result, asked his COO and 100-person team to help the founder with improving and marketing the product (thereby providing additional human, social, and financial capital the founder needed to move forward). Thus, although this founder had no co-founders, this alliance provided her with all the necessary resources to grow and develop the business.

Overall, alliance partners provided solo founders with many of the same *resources* that co-founders provide (see Figure 2), including human, social, and financial capital. Importantly, however, these alliance partners did not provide the same *emotional/psychological* benefits associated with co-founders. Because of this, having alliance partners was not sufficient. As indicated in Table 3, another important condition for entrepreneurs in this configuration is having *emotional support network* (i.e., individuals who provide the entrepreneur with emotional/psychological support during the founding process). As mentioned before, the individuals in the emotional support network were most commonly (1) a spouse, (2) members of a coworking community, or (3) mentors or advisors with whom the founder would meet frequently. The importance of an emotional support network was commonly brought up by founders during interviews, with interviewees saying, "*to succeed… you really need a support*

system", or "*I put together a community of people to support me because it's hard to go it alone. Just psychologically*." Another founder shared the following regarding his spouse:

> *"Having someone there, in my case my wife, someone who is supportive but also can be there when the times are really hard, I think is really important as well… it would be a lot harder for me personally, at least, if it was just like me on my own, in my personal life. But because my wife's there, where I can vent to her, I can talk strategy with her, I can tell her what I want to happen and get her feedback on things... That's a huge benefit and just a tremendous kind of anchor to me. I think it'd be a lot harder if I was just, at the end of the day, left alone with my thoughts. I'd probably drive myself crazy."*

Others referenced receiving similar emotional support from their coworking community, saying

> *"When I've been able to sit down and have conversations with other entrepreneurs… you could say it's a little bit like a therapy session, talking about all the ups and downs" or "For me, it's really the social support... having other people to vent to if you have a project that's really frustrating or a client that's giving you trouble, or I'm just mad for some reason."*

Overall, the founders' emotional support networks provided them with the emotional and psychological support they needed to deal with the inevitable highs and lows of starting and growing a new venture. This emotional support, combined with the resources of the alliance partners, allowed these solo founders to progress without co-founders.

Finally, and importantly, the absence of conflict is also a core condition in this configuration. This is illustrated by one of the co-founded ventures in the sample. Although this venture had an alliance partner that provided substantial resources to help fund and guide the early development of the product, these benefits were counteracted by several conflict triggers among the five co-founders. Two of the co-founders were working full-time in another company and putting minimal effort in to the business. As one of the other co-founders described it, "*they get pretty busy on their other work. So sometimes [the company] is definitely in the second seat.*" These differential commitments, combined with a lack of prior shared working experience,

created rifts and inefficiencies among the co-founders and leading one founder to lament how "*the revenue hasn't come as quickly.*" Thus, alliance partners could not provide enough resources that would allow co-founded ventures to counteract the effects of destructive team conflict.

Pathway to high performance #3. The third configuration was the least common in my sample; yet, it still represented an important type of successful solo founder. Specifically, these consisted of serial founders with product expertise who were able to hire employees from the beginning.

In one case, the founder had previously founded a successful company in the area of machine learning. This original company was acquired, leaving the founder a large payout from the sale. When he founded his second venture (the venture in my sample), he did not bring on co-founders. Instead, he chose to use his accumulated wealth from the prior venture to hire skilled employees from the beginning. He first hired an accomplished and well-connected programmer, who the founder described as "*a brilliant engineer, he's really, really good... People wanted him, he had opportunities.*" He then hired several other employees to fill gaps in skillsets and connections to customers. Thus, using his own financial capital, this founder hired the human and social capital he needed to achieve high performance.

In another example, a solo founder previously owned a small but thriving software development agency with about 15 employees. While developing software for clients, the founder had an idea for a software product of his own and decided to found a new venture (the venture in my sample). He explained that at any given time, about 25 percent of the employees from his original software development agency were "on the bench" and not assigned any projects. While these employees were idle, the founder instructed them to work on building the

product for his new venture. This continued until the product was completed, at which point the founder shut down the agency and transferred all employees to his new venture.

Based on my interviews with these founders, it appears that these employees provided many of the same resources (i.e., human and social capital) as co-founders. At the same time, however, they were unable to provide the same level of emotional/psychological support. For example, one solo founder who had employees explained how she would occasionally learn of winning or losing a major client around midnight and want to call someone to talk it through. She explained that it was during these times that she wished she had a co-founder, saying "*I have employees, and… I want to share that with [them], but there are lines that you can't cross with employee/employer relationships and I need to keep those lines*." This lack of emotional/psychological support is another reason that being a serial founder is an important condition in this configuration. In addition to accumulating more resources from prior ventures, serial founders also seemed to need and want less emotional/psychological support relative to first-time founders. This was largely a function of them having been through the ups and downs of the entrepreneurial process before, and also having more confidence they could get through it. As one founder shared with us, *"I've had four companies. The first one had a partner; it was great. There was no way I could have done it on my own, you know?... [but recently], I don't like to take partners…I just don't need them."* Overall, relative to other solo founders, serial founders wanted and needed less emotional/psychological support.

Importantly, however, not all founders who hired employees succeeded. As configuration 2 suggests, having employees is not enough. "Product expertise" is also a core condition in this configuration, implying that founders with employees must also have product expertise in order to succeed. To illustrate, one founder lacked technical experience, but attempted to build an

online platform. At the outset of his venture, he secured a large amount of capital from his family and friends that allowed him to hire employees from the beginning. He hired an individual to develop the platform, but was ultimately terribly disappointed. The founder did not understand the technology well enough to supervise the employee, leaving the employee with little direction. The employee ultimately left out of frustration, and as the founder described, he "*left us a little bit high and dry on the continued development of the platform…we elected to basically start all over*" The founder discarded all of the employee's prior work and hired contractors to build the next version of the product. Thus, the data suggest that founders must not only be able to hire employees, but also must possess the necessary expertise to monitor their work appropriately.

Pathway to high performance #4. The final type of successful solo founder in my sample was perhaps the most unexpected. These founders did not have co-founders, alliance partners, or employees, but they did have *benefactors*. As noted earlier, the concept of a benefactor emerged from the interview data and I define it as an outside party who alleviates a major resource constraint for the entrepreneurs with no expectation of compensation or reciprocation.

Benefactors helped the ventures in my sample in a variety of ways. In one example, the founder required a large amount of capital equipment to start his new venture. This founder lacked adequate resources to purchase the required equipment, and so considered bringing on a co-founder who could personally fund the initial purchase of the capital equipment. Instead, however, he had a friend who owned a small business with the necessary equipment. This friend graciously allowed the founder to use the equipment free of charge, thus eliminating the founder's need to obtain financial capital. Further, he also allowed the founder to borrow his employees from time to time, thus providing the necessary human capital to perform tasks for

which the founder lacked the time or expertise to perform. This persisted until the founder secured enough revenue to hire his own employees and purchase his own equipment.

Similarly, in a venture focused on developing new brewing technology, the founder had little experience and few resources. However, there were members of the local brewing community who freely shared knowledge and understanding. First, they taught her how brewing technology worked and guided her in setting up her own manufacturing facility (human capital). As the founder explained: "*I learned from them on the equipment that I might need…and I would come back to them with like, 'Oh, I tried this. And that filter you gave me is not fine enough. What other filter do you have? Oh, that's not gonna work for this reason. What about this?' And so we would troubleshoot together the early, early days, and I learned so much from that process*." Second, they also allowed her to use their equipment and facilities for experimentation, thus removing the need to find financial capital to develop the product. Finally, they introduced her to potential vendors (social capital) and helped her understand "*which contractors to hire, which ones not to hire, etc.*" With all their assistance, the members of the local brewing community received no equity or payment – they simply took a liking to this entrepreneur and decided to help.

As a teenager, another founder cared for the kids of a local and influential multi-millionaire. She developed a good relationship with this person, and after graduating from college decided to start her own venture and went to this person for advice. Not only did he give her a substantial amount of advice on how to develop and market her product (human capital), he also gave her free office space (alleviating the need for financial capital) and connected her to her first large corporate customers as well as her first investors (social capital). He also later served as a reputable reference for future customers and investors. This founder described how

her friend would constantly ask, "*What do you need? I'm gonna give you office space…And how else can I help you? Do you need people on your board? What do you need?"* He helped build the company, and even picked out the name for the company. Again, he did this without taking any equity stake, receiving any payment, or ever being on the board of the company; he only wanted to help. As she put it, "*He's always been my biggest cheerleader…[and] I'm thankful for that."*

Overall, these benefactors relaxed several resource constraints that solo founders generally experience, thus helping them achieve high performance. But, they differed in that they expected no reciprocation or compensation for their services, meaning the entrepreneur was able to retain full control.

Importantly, however, my findings show that having a benefactor is not a sufficient condition by itself. Similar to alliance partners and employees, benefactors provide many of the same *resources* as co-founders, but not the same *emotional/psychological* benefits. As such, having an emotional support network is also a core condition in this configuration. Or, as one founder with a benefactor put it, "*to succeed… you really need a support system.*"[11] In addition, product expertise was once again a core condition, suggesting that founders with benefactors but no product expertise may still struggle. In one venture, for example, a benefactor gifted the founder with $50,000 (non-dilutive, no strings attached), and also provided him with several connections to important product testers and potential customers. The founder used the money to

[11] There are some similarities between benefactors and the members of the emotional support network. For example, they both generally have a personal relationship with the entrepreneur, and neither of them require any compensation for their services. The key distinction is that a benefactor provides *resources* (i.e., human, social, financial capital) whereas a member of the support network provides *emotional/psychological support*. It is possible that a single individual can be both a benefactor and a member of the emotional support network, if they provide both types of services to the entrepreneur. However, in our data, most of the benefactors provided resources only, and did not meet with the entrepreneur on a regular basis and provide the emotional/psychological support discussed above.

pay freelancers and contractors in an attempt to build the online platform from scratch, but he lacked the technical knowledge required to properly direct their efforts. As such, the coordinating and monitoring costs proved too high, with the founder describing the lack of technical expertise as being the main "bottleneck" and "biggest low point." During the interview the founder contemplated what would have happened if he had brought on a co-founder from the beginning, and mused that "*I think we would be further along… that's always been the bottleneck, is getting the technical firepower*."

Finally, and similar to the prior two configurations, the absence of conflict is also a core condition. This is illustrated by a few of the co-founded ventures in the sample who had benefactors, but who also experienced destructive relationship conflict. In one co-founded venture, for example, a benefactor built the entire online platform (the core of the business) for free. However, conflict stemming from different opinions on what customers to target plagued the founding team to such an extent that some co-founders started putting less effort into the business than others, thus further fueling the conflict. One founder confided in me the emotional toll this conflict had taken on him, ending the interview by joking, "*thanks for the therapy session, how much do I owe you?*" Thus, even benefactors could not provide enough resources that would allow co-founded ventures to counteract the effects of destructive team conflict.

Implications: Co-Creators vs. Co-Founders

As a whole, these findings suggest that solo founders can mobilize many of the same resources provided by co-founders, but in different ways. Some founders, for example, were able to fill their gaps in human, social, and financial capital by forming *alliances* with other organizations, allowing them to benefit from their partners' expertise or connections while still remaining the sole founder of their company. Other founders opted to obtain the human and

social capital they needed by hiring *employees*. Yet other founders had *benefactors*, who came in a variety of forms but all provided the founders with some combination of human, social, and financial capital they needed to succeed, all without any expectation of reciprocation or compensation. Many of these founders also relied on an *emotional support network*, consisting of individuals who provided the entrepreneur with the emotional and psychological support they longed for during the emotionally-taxing process of founding a new venture.

Although these employees, alliance partners, benefactors, and emotional support networks were not officially co-founders, they still acted as *co-creators* of these ventures. The concept of co-creators emerged from my interview data, and I define them as key providers of capital (human, social, or financial) or emotional/psychological support at the earliest stages of a venture. Throughout my interviews, solo founders stressed how these "co-creators" (i.e., employees, alliance partners, benefactors, and the emotional support network) all played vital roles in their ventures, and that without them, the founder would likely have either had to find a co-founder or would not have succeeded at all. For example, one founder who had employees but not co-founders said, "*they weren't co-founders, but obviously have shaped the company from the very beginning and all the way through.*" Another solo founder who had benefactors but no co-founders said, "*They feel like my founders because they built the company with me… And that's I think where I've gotten away with not having a co-founder… So I have a lot of people… that have made this happen, it's not just me.*" Another said, "*I kind of have my support team of many co-founders, if you will...*" In fact, many of the solo founders I interviewed were uncomfortable with the "solo founder" label, arguing that "*even though I'm the one steering the ship, it certainly wasn't me alone and I don't ever want to appear that it was me alone*," or "*certainly know that I didn't build it by myself, that's for darn sure.*"

In short, the data suggest that *successful solo founders are not actually solo*. They may not have a traditional co-founder with equity and voting rights, but they still have others surrounding and helping them co-create the business. This diverges from prior literature in key ways, as most prior studies tend to privilege *founders*, and thus pay less attention to other important contributors. My analysis, however, suggests that there is often a constellation of people surrounding the founder and co-creating the venture along with them. These hidden figures, which are rarely observed in entrepreneurial data, seldom receive the same recognition, credit, or glory as founders for creating the venture, despite playing an outsize role in venture success. Yet, they may very well represent much of the "X factor" in entrepreneurship (Saxton et al., 2016), accounting for much of the unexplained differences between successful and unsuccessful ventures.

Overall, these results suggest that co-founders are not always required as dictated by conventional wisdom. Solo founders can find substitutes that provide many or all of the same benefits, while at the same time avoiding some or all of the costs. In the discussion section, I expound on the concept of co-creators and address several residual questions.

Supplemental Analysis: Necessary Conditions

The analysis above suggests that there are four combinations of conditions that are *sufficient* to achieve high performance. However, when using QCA, it is also common to assess whether any given condition (or combination of conditions) is *necessary* to achieve the outcome (Ragin, 2000; Dwivedi et al., 2018). Given the foregoing analysis, an important question is whether the absence of conflict triggers is necessary, as it appeared as a condition in each of the four configurations leading to high performance. To analyze whether a specific condition is necessary, one must compare the observed consistency of a given condition with a pre-specified

benchmark consistency. Ragin (2000) suggests using a benchmark of 0.8 to examine conditions that are "almost always" necessary, and I use this as a benchmark in Table 4. As shown therein, the absence of conflict triggers was indeed a necessary condition, implying that the absence of conflict triggers is "almost always" necessary to achieve high performance.

Interestingly, the analysis also shows that co-founders are not necessary conditions on their own. This is counter to the conventional wisdom that dictates that co-founders are necessary as they provide valuable resources as well as emotional/psychological support (see Figure 2). However, I also tested whether it was necessary to have co-founders *or* employees *or* alliances *or* benefactors (at least one of the four resource providers). The analysis reveals that it is indeed "almost always" necessary (using a benchmark of 0.8) to have one of these four resource providers present in order to succeed. This suggests that founders who do not source resources from co-founders or employees or alliance partners or benefactors (i.e., founders who are truly solo) are highly unlikely to succeed.

In the final row of Table 4, I also test whether it is necessary for founders to have emotional/psychological support from either co-founders *or* an emotional support network, *or* to be a serial founder (as they may want or need this support less than others as discussed above). The analysis suggests that it is "almost always" necessary to have one of these conditions. This suggests that even if founders have access to resource providers (i.e., co-founders, alliance partners, employees, or benefactors), they must also receive emotional/psychological support from somewhere (either through co-founders or an emotional support network, or by being a serial founder and having less need for this support).

DISCUSSION

New ventures generally face severe liabilities of newness due to the lack of human, social, and financial capital. One of the most common ways in which entrepreneurs overcome such liabilities is by partnering with co-founders (Wasserman, 2012). Indeed, studies find that on average, larger founding teams perform better than smaller founding teams (Eisenhardt & Schoonhoven, 1990). Although prior work is helpful, it is also generally silent on the conditions under which solo founders might be able to perform as well as co-founders. Using in-depth qualitative data on 70 entrepreneurial ventures, I address the question *under what conditions do solo-founded ventures perform as well as co-founded ventures?* My findings suggest that solo founders perform as well as co-founded ventures when they are not actually solo, or in other words, when they have *co-creators* supporting them. In the sections that follow, I offer additional insight into (1) *how* co-creators can act as substitutes for co-founders (and how they cannot), (2) *who* has access to co-creators, and (3) *why* founders choose co-creators vs. co-founders.

How Can Co-Creators Act as Substitutes for Co-Founders, and How Can they Not?

As discussed above, co-creators can act as substitutes for co-founders in many ways. However, they are not always perfect substitutes. I thus return to the advantages and disadvantages of co-founders presented in Figure 2 and discuss how the benefits and costs of co-creators may be similar to or different from co-founders (see Table 5 for summary).

Resources. Co-creators such as employees, alliance partners, and benefactors can provide many of the same resources as co-founders. For example, they can provide *human* capital to a venture by bringing needed skills, knowledge, or experience, *social* capital via more connections

to potential customers, hires, or investors, and *financial* capital by helping fund the business until founders can find investors. Of course, each co-creator will be unique in its own right, as they will bring different combinations of human, social, and financial capital, depending on the type of co-creator and the type of firm. In general, however, co-creators can provide many of the same resources that co-founders provide.

Emotional/psychological support. Though employees, alliance partners, and benefactors can provide many resources to ventures, they do not provide the same emotional or psychological benefits as co-founders. However, this is where the emotional support network can provide value. By listening, supporting, and sharing the emotional highs and lows with the founder, the emotional support network can often provide much of the emotional and psychological support that founders crave during the founding process. This is rarely a perfect substitute for co-founders, as co-founders jointly experience many of the same day-to-day challenges; yet, the emotional support network can often provide *enough* of the same emotional/psychological support to help founders cope.

Coordination/monitoring costs. Co-creators may generate some of the same coordination and monitoring costs as co-founders. In fact, monitoring costs may be even higher for employees than they are for co-founders, as prior literature suggests that co-founders' personal identity is often wrapped up in that of the venture, thus making them more intrinsically motivated to pursue the organizations' best interests. As such they are expected to act less like "agents" and more like "stewards" (Wasserman, 2006), thus requiring less monitoring. Also, with alliance partners, coordination costs are likely to arise when communicating and coordinating across organizational boundaries (Gulati & Singh, 1998). With benefactors, however, these costs may

be nonexistent, as the nature of their relationship (freely giving resources with no expectation of reciprocation) requires no monitoring and little coordination.

Conflict. Although co-creators generally cannot provide the same level of emotional/psychological support as co-founders, they also have the benefit of not creating the same level of conflict. Of course, founders can experience conflict with co-creators, as disagreements may arise with employees, alliance partners, and others. However, the likelihood and magnitude of this conflict is generally less severe, as solo founders do not enter into a similar marriage-type relationship described earlier. Thus, by using co-creators, solo founders are able to benefit from many of the same resources as co-founders, but *without* much of the conflict. And, in cases where conflict does happen to arise with co-creators, the ability to remove these individuals from the business is much easier than it is with co-founders.

Overall, the pros and cons of co-founders versus co-creators will be specific to the characteristics of each co-founder or co-creator. In general, however, co-creators can provide many of the same *resources* as well as many of the same *coordination and monitoring costs*. At the same time, they generally provide less *emotional/psychological support*, but also generate less destructive *conflict*.

Who Has Access to Co-Creators?

To have access to co-creators, founders must personally possess certain types of capital. For example, hiring employees is typically only an option for founders who possess adequate amounts of *financial capital* to pay employee salaries. Similarly, only founders with adequate *social capital* are able to form relationships with alliance partners and benefactors. In addition, the results of Table 3 indicate that even when solo founders had access to co-creators, they only

succeeded when they had a specific type of *human capital* – product expertise. Solo-founding, then, may only be a viable option when the founders' personal capital endowment includes an adequate amount of financial or social capital, as well as a specific type of human capital.

I note that this may be easier for founders from privileged backgrounds with easy access to these types of capital. However, my data suggest that co-creators are not just for the privileged few, but are something all could have with creativity, thought, and hard work. Indeed, the founders with co-creators in my sample came from a variety of backgrounds. For example, the founder who formed an alliance with a YouTube celebrity started her company with only $1,300 in her bank account, and lived in a modest home in the country. Fortunately for her, the YouTube celebrity (whose primary residence was in another state) purchased a second home in the same neighborhood. She recognized this as an opportunity, and was creative and bold enough to approach him with an interesting idea and offer to collaborate. Other founders came from similarly humble backgrounds, and had to work very hard to develop relationships with alliance partners and benefactors. One solo founder, who had little savings and few connections, wished to form an alliance with a prestigious private school, as they were "*an extremely exceptional school, and the resources they have are pretty phenomenal… they lock arms with the best in class partners.*" After being unable to gain attention from and set up a meeting with the school's executives, she spent countless hours reaching out to parents and describing to them how her product would benefit their children. She continued doing this until one parent sent a letter to the head principal of her target school, which led to a meeting with school executives, the head of school, the CFO, the head of marketing, and other senior school executives who then listened to her impassioned pitch and ultimately agreed to partner with her. Similarly, another founder

formed a key alliance with a utility company, but had to make many contact attempts and pitches and provide great evidence of proof of concept before the company agreed to form an alliance.

Overall, founders need to possess or create the right human, social, and financial capital if they hope to find and effectively use co-creators. Though this may be easier for individuals with greater initial capital endowments (as are many other tasks in entrepreneurship), gaining access to co-creators is likely possible for most entrepreneurs with enough creativity, thought, and effort.

Why Do Founders Choose Co-Creators vs. Co-Founders?

Co-creators are not unique to solo founders. Teams of co-founders can (and did, in my sample) rely on co-creators as well. Thus, if a founder has access to co-creators, why do some decide to go solo, and why do some still partner with co-founders? Once the concept of co-creators started emerging in my interviews, I began asking entrepreneurs this question, which led to a convergent set of preferences and motivations (see Table 6).

For those who chose to go solo, there were three general motivations. The first was to ***avoid co-founder conflict***. Many of the founders I interviewed were aware of the potential challenges stemming from co-founder conflict and wished to avoid them. For example, one founder said, "*I've heard such horror stories about having bad co-founders. I am really leery about [it]…*" Second, founders often went solo to ***maintain equity and control***. When there are multiple founders in a new venture, they must split equity and decision rights among themselves. With co-creators, however, there is no obligation to grant equity or voting power of the venture, meaning the founder is able to retain more or all of it. For example, one solo founder said, "*I would say that my personality... I tend to just want to do things my own way. I really just want to*

have my own business [and be] a solo founder making the decisions..." Third, some founders simply wished to ***grow or develop personally***. They welcomed the challenge of being a solo founder, as it helped them fulfill their own goals for personal development, and not just the development of the venture. For example, one solo founder was highly experienced in software development but had little experience being "the boss" and managing a business. Although he could have found a business-savvy cofounder to fill that gap, he had no interest in doing so because he wanted to learn those skills himself. He said, "*I think that I have a lot of different skills besides software development and I want to be using them, and I think having my own business allows me to do that.*"

Other founders, however, still chose to partner with co-founders, even if they had access to co-creators. When I asked these founders why they chose to do so, the answers were almost always related to the emotional/psychological benefits of co-founders. For example, some chose co-founders because they ***preferred working with others***. These founders preferred operating with a more collaborative style, in which most or all ideas and decisions were articulated and discussed among two or more people. Some founders couldn't imagine doing it any other way, with one saying, "*I think starting a business without a partner…is insane…I would just go nuts without having someone to bounce everything off of, and to decide critical decisions with*." Others brought on co-founders simply to ***cope with loneliness***. Again, although co-creators can provide some of the same emotional and psychological support as co-founders, they are not always perfect substitutes, and many entrepreneurs in my sample sought out co-founders for that reason. For example, one co-founder who had previously solo-founded another venture said: "*The first company I tried to start was solo. That was hard. It was really hard. The low points*

are extra low, because you're the only one who has to really deal with it. Going at it alone is really, really hard."

A Theoretical Model to Decide Between Going Solo or Finding Co-Founders

The question this study set out to address is: *Under what conditions do solo-founded ventures perform as well as co-founded ventures?* While my study suggests that solo founders perform as well as co-founders when they have *co-creators* it also suggests that there are times when it is best to remain a solo founder and other times when it is best to search for co-founders, depending on a few important factors (see Figure 3 for a comprehensive summary).

First, the entrepreneur should assess whether they have access to co-creators. To do so, the entrepreneur must evaluate his or her own personal capital endowment. Specifically, the entrepreneur must evaluate whether they have or are able to build or obtain adequate *financial capital* to hire employees, adequate *social capital* to form relationships with alliance partners or benefactors, and a specific type of *human capital* (i.e., product expertise). If so, then co-creators may be an option.

If the founder is able to gain access to co-creators, the question then becomes about preferences (see Table 6). Specifically, if the founder prefers working closely with others and coping with the loneliness of founding a new venture, the entrepreneur should partner with co-founders. If, however, the entrepreneur instead prefers avoiding potential co-founder conflict, maintaining equity and control of the venture, and having opportunities to grow and develop personally, then the entrepreneur should solo-found and mobilize resources through co-creators rather than co-founders.

However, if the entrepreneur is unable to gain access to co-creators, the next issue to consider is whether the founder has access to *compatible* co-founders. In other words, the entrepreneur should assess the set of prospective co-founders and determine whether they meet the criteria found in Table 3. Namely, whether they possess complementary skillsets, and whether there is a high potential for conflict. Though it may be particularly difficult to predict the likelihood of conflict, one way entrepreneurs may do this is by considering the conflict triggers in Table 1 (used for the conflict index) as indicators of whether conflict is likely to occur. Overall, if prospective co-founders meet these three criteria, then the founder should co-found with those individuals.

If, however, the founder does not have access to co-creators and is also unable to find co-founders who meet these criteria, it may be advisable to wait to found the venture until one or the other changes. This may not be the answer that an eager entrepreneur wishes to hear, but it is likely preferable to founding as a truly "solo" founder or founding with unhelpful or even detrimental co-founders.

Contributions to Entrepreneurship

Challenging the conventional wisdom that co-founders are necessary. This study challenges the conventional wisdom, found both in research and in practice, that co-founders are necessary for venture success. While my findings suggest that solo founders mobilize many of the same resources through *co-creators* instead of *co-founders* they also reveal that co-creators come in several forms. For example, some founders in the sample had access to sufficient financial capital at the outset of their venture, and were thus able to hire *employees* to fill the gaps in their human and social capital. Other founders formed *alliances* with other organizations, thus filling their gaps in human, social, and financial capital through formal partnerships. Yet

other founders had *benefactors*, who provided founders with some combination of human, social, and financial capital they needed to succeed, all without any expectation of reciprocation or compensation. Many of these founders also relied on an *emotional support network*, consisting of individuals who provided the entrepreneur with the emotional and psychological support they longed for during the emotionally taxing process of founding a new venture. These various co-creators built the business alongside the founders, providing the necessary resources and emotional support the founders needed to survive and thrive. Future research should continue to examine whether and when certain co-creators are more beneficial than others.

Shedding light on key (non-founder) contributors. In the Panel Survey for Entrepreneurial Dynamics (a nationally representative survey of founders), respondents were asked to provide information on any key non-owners and helpers who made a "distinctive contribution" to the founding of the business (Burton et al., 2009). Approximately 62 percent of respondents reported at least one key contributor, with many reporting more than one. The authors of the survey conclude that while "*previous research has tended to privilege one set of stakeholders: 'founders*'", more attention should be paid to other contributors who have been "*relatively ignored*" (Burton et al., 2009:115). As one of the first empirical attempts to do so, this study contributes by providing more details on the constellation of people involved in starting a new venture, or those hidden figures who are sometimes forgotten or downplayed yet who play an outsize role in entrepreneurial success. While they are rarely observed in entrepreneurial data and seldom receive the same recognition, credit, or glory as founders for creating the organization, these co-creators may very well account for much of the unexplained differences between successful and unsuccessful ventures (Saxton et al., 2016). For example, prior research discusses concepts such as entrepreneurial bricolage, in which entrepreneurs make do with the

resources at hand and essentially create "something from nothing" (Baker & Nelson, 2005). My results, however, suggest that in some cases this "nothing" may actually represent resources provided by co-creators.

In particular, this study adds to the literature by introducing the concept of benefactors. Past studies examine related concepts, such as mentors and advisors, who often help entrepreneurs with their strategic decision making by vetting ideas and offering an outside perspective (Ozgen & Baron, 2007; Saxton et al., 2016; Burton et al., 2009). However, my conceptualization of benefactors is broader and more encompassing, and includes all outside parties who relax some resource constraint for the entrepreneur with no expectation of compensation. Thus, mentors and advisors are a *type* of benefactor (ones who often provide free advice or connections to entrepreneurs), but there are many other potential types of benefactors. For example, benefactors can also come in the form of friends, family members, acquaintances, or anyone else who freely gives of their time, expertise, and resources to entrepreneurs. Future work should more fully explore this phenomenon and examine its influence on venture outcomes.

Contributions to Strategy

Spotlights alternative ways of mobilizing resources. This study spotlights an alternative way of mobilizing resources (human, social, and financial capital) early in a venture's life. Given its importance to the survival chances of new ventures, the resource mobilization process is a central and defining feature of research in strategy and entrepreneurship (Clough et al., 2019). Yet, the majority of prior studies focus on how entrepreneurs acquire financial resources (particularly venture capital), which Clough et al. (2019) note is likely due to the easier availability of secondary data. This is problematic, as it places a disproportionate focus on later

stages of growth (i.e., later rounds of financing, rather than the earliest days of a new venture) and on a small fraction of the universe of all new ventures (i.e., those who receive venture capital – see Aldrich & Ruef, 2018). There is thus limited coverage on strategies for mobilizing other types of resources (i.e., human and social capital) as well as limited coverage for how founders mobilize resources in the earliest stages of a venture's life cycle (despite this being the time in which it is most difficult to mobilize resources). This leaves many open questions as to how new founders actually search for and acquire resources necessary for survival. This study contributes by suggesting that one way in which founders may mobilize these key resources (human, social, and financial capital) early on is through *co-creators*. Future work should continue to parse out and attempt to better understand how and when founders have access to and can effectively use these co-creators.

Suggests that the "Rich vs. King" dilemma may not be as dichotomous as previously thought. Finally, this study contributes by suggesting that the "Rich vs. King" dilemma may not as dichotomous as previously thought. The Rich vs. King view suggests that it becomes increasingly difficult for founders to retain control as a firm grows, as founders often must give up control in order to gain access to resources (Wasserman, 2017). Thus, entrepreneurs face a dilemma, in that they can either choose to give up large amounts of control in order to grow their firms (in hopes of becoming "rich") or sacrifice firm growth in order to retain control (and thus remain "king"). This study, in contrast, finds evidence of strategies founders use to retain control while still gaining access to the resources needed to grow. Specifically, by mobilizing resources via co-creators rather than co-founders, entrepreneurs may be able to achieve relatively the same value for their venture, but without having to share control and equity with other partners. In other words, this study suggests that founders may be able to be both rich *and* king under the

right conditions. One notable illustration is Jeff Bezos, whose decision to solo-found Amazon is at least partially the reason that he is *both* the richest man in the world and also still remains the "king" of Amazon with full voting control. Had he shared equity and control with co-founders early on, things would likely be different. Future work should explore this distinction between venture performance and founder performance to further my understanding of this tradeoff between value creation and value appropriation in founding teams.

CONCLUSION

The choice of whether to partner with co-founders or remain solo is one of the first and most important decisions an entrepreneur must make. Yet, while past empirical research finds that larger founding teams outperform smaller teams on average, the existing literature is not clear regarding the conditions under which solo founders might be able to perform as well as or even better than co-founders. Using in-depth qualitative data on 70 new ventures, I address this gap. My findings reveal that instead of using *co-founders*, successful solo founders use *co-creators* (e.g., employees, alliances, benefactors, and emotional support networks). These co-creators provide many of the same benefits as co-founders (i.e., human, social, and financial capital), but without many of the downsides (i.e., team conflict, giving up control/equity). Overall, while prior research regularly extols the benefits associated with co-founded ventures, these results help uncover how solo founded ventures may perform as well as or even better.

CHAPTER 3: SECOND-IN-COMMAND
DO FOUNDERS NEED A No. 2?

ABSTRACT

To compensate for their professional limitations, founders that hold the CEO position in large firms are often encouraged to hire a "second-in-command" (i.e., a COO or President). Surprisingly, however, little is known about the prevalence of a second-in-command in founder-led firms, or its influence on firm performance (if any). Using novel methods and a sample of over 2,000 IPO firms, I address these gaps. I find that founder-led firms are more likely to have a second-in-command relative to firms without founder CEOs. In contrast to firms without founder CEOs, whose performance is adversely affected by the presence of a second-in-command, I find that founder-led firms perform better when a second-in-command is present. Collectively, my findings add fresh contributions to the entrepreneurship and upper echelons literatures.

INTRODUCTION

In 2004, Mark Zuckerberg founded Facebook in his Harvard dormitory. Though Zuckerberg was able to guide the company through product development early on, its rapid growth brought new challenges associated with making the firm profitable, expanding overseas, and developing an advertising network. In 2008, realizing that his company had to "grow up at internet speed," Zuckerberg hired Sheryl Sandberg as Chief Operating Officer to help accomplish these monumental tasks (Wall Street Journal 2008). Since then, the company has grown from 66 million users (and $272 million in revenue) to more than 2.4 billion users (and $55 billion in revenue), meaning Facebook now boasts more members than any single nation, language, or religion (The Guardian 2018). Following this phenomenal success, the Zuckerberg/Sandberg partnership has been dubbed the "power duo" and has become part of Silicon Valley legend (CNN Business, 2019), with other founders of high growth firms being encouraged to find their own "Sheryl" (FastCompany, 2014).

Surprisingly, very few studies examine the "second-in-command" leadership structure. The studies that do exist indicate that firms with a second-in-command are generally structured so that the CEO focuses on external and strategic activities, whereas the second-in-command is given the title of Chief Operating Officer (COO), President, or both and tasked with overseeing internal business functions (Hambrick & Cannella, 2004; Zhang, 2006; Marcel, 2009; Vafeas & Vlittis, 2012). In terms of how this impacts firm performance, these few prior studies find mixed results. In particular, Marcel (2009) finds a positive relation between the presence of a second-in-command and firm performance, arguing that the management of a contemporary firm is a complex task that is too much for one person to handle (Heenan & Bennis, 1999; Drucker, 1954). Others, however, find evidence that the second-in-command structure has a strong

negative relation with firm performance (Hambrick & Cannella, 2004), arguing that this relation arises because the second-in-command reduces unity of command within the firm, creating confusion about "who's in charge" (Zhang, 2006; Krause et al., 2015).

These prior studies have helped shed light on the second-in-command phenomenon. However, they do not consider how founder CEOs might use and benefit from a second-in-command differently from other top executives. Yet, this distinction is important both theoretically and practically. From a theoretical perspective, founders generally act, think, and behave differently from other managers (Busenitz & Barney 1997; Nelson 2003). Whereas professional CEOs have decades of training and possess substantial managerial experience from working their way up organizational charts, founders with "*a single, powerful business idea are thrown into CEO positions by default and not by training, and it happens very, very quickly*" (Fortune 2015). As such, it is possible that founders may benefit from a different organizational structure relative to other top executives.

It is also important from a practical standpoint to understand whether founder-led firms benefit from hiring a second-in-command. This is particularly so in light of recent evidence that reveals increased competition among venture capitalists has led to founders being able to retain control of their firms for longer periods of time (Blank, 2017). This finding, together with prior research that indicates founders generally lack the competencies to lead companies through later stages of growth (Kor, 2003; Hambrick & Crozier 1985; Pollock et al. 2009), highlights the need for research that examines how large organizations with founder CEOs can best structure their top management teams to compensate for the founder's managerial limitations. Despite many large and high-profile founder-led companies having used a second-in-command leadership structure (e.g., Apple, Amazon, Microsoft, Facebook, Dell, AirBnB), no prior studies examine

the prevalence of a second-in-command for founder-led firms or whether it differentially affects firm performance.

In this study, I fill an important gap in the existing literature by examining two key questions: First, *are founders more likely to have a second-in-command relative to other CEOs?* And second, *do founders benefit more from having a second-in-command relative to other CEOs?* Because founder leadership is not randomized, I face an empirical challenge that large companies with founder leadership differ from other firms across key dimensions. To address this endogeneity, I use entropy balancing – a novel multivariate matching approach that reweights the control group observations (i.e., firms without Founder CEOs) such that the first, second, and possibly higher moments of the covariate distributions match those of the treatment group (i.e., firms with Founder CEOs) (Hainmueller, 2012). By achieving covariate balance between the two groups, this technique reduces model dependency for the subsequent estimation of treatment effects and is increasingly being across disciplines by researchers seeking to draw causal inference when restricted to using observational data (e.g., Bansak, Hainmueller, & Hangartner 2016; Stanton & Thomas 2016; Shroff, Verdi, & Yost 2017; Jacob et al. 2019). Although this method (and other similar synthetic control methods) is not perfect in assessing causality, Athey and Imbens (2017) suggest that such techniques are "arguably the most important innovation in the policy evaluation literature in the last 15 years."

Using this multivariate matching technique with a detailed sample of over 2,000 industrial firms that performed initial public offerings from 1997 to 2013, I find that large firms with founder CEOs are much more likely to have a second-in-command relative to other large firms. I also find evidence suggesting that the founder-led firms benefit more from having a second-in-command, and that this relation is more pronounced for firms with founder CEOs who

lack operational experience and who hold more power within the firm. Collectively, my results contribute to the entrepreneurship literature by highlighting a common but under-studied top management team structure of founder-led firms, and examining whether this practice may be perceived as a "best practice" (i.e., when it may be more or less helpful). My findings also contribute to the upper echelons literature by shedding needed light on both the antecedents of team structure and the contingent performance effects of a second-in-command.

LITERATURE REVIEW AND HYPOTHESES

A "second-in-command" leadership structure is a commonplace idea that is ages old and exists across a variety of contexts (e.g., country presidents and vice presidents, generals and chiefs of staff, and university presidents and provosts). In corporations, however, the COO position is a relatively recent organizational development (Hambrick & Cannella, 2004). When present, prior research indicates that the COO generally takes responsibility for "internal" activities such as monitoring subordinates, implementing strategies, handling disturbances, and allocating resources. This allows the CEO to then focus primarily on "external" activities and longer-term issues such as securing and satisfying external resource providers, transmitting information to outsiders, scanning the environment, and crafting a long-term vision and strategy. In other words, while CEOs keep their "head up" to navigate the firm's future trajectory, the second-in-command keeps his or her "head down" to focus on today's most crucial operational details (Bennett and Miles, 2006). While some CEOs may divide tasks somewhat differently with their second-in-command, prior research suggests that this division of responsibilities is generally applicable (Hambrick & Cannella, 2004; Marcel, 2009; Bass & Stogdill, 1990).

The Implications of a Second-in-Command

The division of external vs. internal responsibilities between CEO and second-in-command can result in both advantages and disadvantages, according to prior research (Marcel, 2009; Levinson, 1993; Bennett & Miles, 2006). In the sub-sections that follow, I discuss a primary advantage (i.e., reducing CEO overload) and disadvantage (i.e., decreasing unity of command) of the second-in-command structure. I also summarize these arguments in Table 7.

Reducing CEO overload. In their seminal thesis, Hambrick and Mason (1984) indicate that the organization is a reflection of its top managers. Although upper echelon theory acknowledges the CEO as the key decision maker, it also acknowledges that CEOs face costs of processing information and are thus boundedly rational. Such bounded rationality leads CEOs to possess only partial information that is often inaccurate, resulting in flawed mental maps (Simon, 1947, 1955; Gavetti & Levinthal, 2000; Prahalad & Bettis, 1986; Blankespoor, deHaan, & Marinovic, 2020). Cognitive biases as well as limited cognitive resources also affect CEO choices (Tversky & Kahneman, 1974; Rao, Greve & Davis, 2001). With these limitations in mind, proponents of the second-in-command structure argue that it is becoming increasingly necessary, as running a contemporary firm is considered an ever more complex task that is too much for one person to handle (Heenan & Bennis, 1999; Drucker, 1954). Thus, the second-in-command structure can improve firm performance by preventing the CEO from being "spread too thin" and thus doing all aspects of the job poorly (Hambrick & Cannella, 2004). Consistent with this logic, Marcel (2009) provides evidence from a sample of 153 industrial firms that the presence of a COO is positively related to firm performance.

Reducing unity of command. On the other hand, however, critics of the second-in-command structure argue that it has the potential to decrease "unity of command," a long-held

principle that an organization should be led by only one individual at a time (Krause et al., 2015; Fayol, 1949; Barnard, 1968; Simon, 1997; Gulick & Urwish, 1937). Fayol (1949) describes this principle in his treatise on general and industrial management and advocates that for any task whatsoever, an employee should receive orders from only one superior. Should this be violated, the firm risks becoming a "*two-headed monster*" where "*authority is undermined, discipline is in jeopardy, order disturbed, and stability threatened*". Thus, when a CEO and second-in-command divide responsibilities, confusion may arise about who is actually in charge, potentially complicating and restricting the flow of information.[12] This may not be a problem if the second-in-command is in sync with the CEO, or as Levinson (1993) puts it, is content with being the "*piano accompanist to a violin soloist*" and accept the fact that his or her primary responsibility is to make the CEO look good. However, past studies suggest that many second-in-commands have ambitions to eventually become first-in-command, thus representing a contender to the CEO's power (Zhang, 2006; Levinson, 1993). This is why, Levinson (1993:71) argues, that the CEO/COO relationship is perhaps "*the most difficult of all organizational working relationships because more than any others, it is a balancing act on the threshold of power."* Because reduced unity of command can introduce fragmentation into a firm, critics of the second-in-command structure argue that this organizational form will negatively affect firm performance. Consistent with this logic, Hambrick and Cannella (2004) study 405 instances of a second-in-command and find evidence of a strong negative relation with firm performance.

[12]For example, Jack Welch – the renowned and long-serving CEO of General Electric – refused to ever have a second-in-command as it would add an unneeded "layer of advocacy" (Murray, 2000).

Why Founders are Different

Past research suggests that founders differ from professional CEOs both in terms of their individual *capabilities*, as well as their *power* within the firm (Nelson, 2003; Jayaraman et al., 2000; Wasserman, 2003 & 2017). In the sections that follow, I discuss why these inherent differences may moderate the advantages (i.e., reducing CEO overload) and disadvantages (i.e., reducing unity of command) of the second-in-command structure.

Founder capabilities. Past research suggests that founders generally possess a different skillset from professional CEOs. Specifically, founders are often characterized as extreme types – "driven, independent, rebellious builders" (Hambrick & Crozier, 1985: 44) who have the exact skills, capabilities, and passion for discovering new opportunities, crafting a vision, developing new products, and creating a new venture (Cardon et al., 2009; Kirzner, 1985; Shane 2000). However, as a firm grows, the importance of the founder's original role in establishing firm viability is reduced and the administrative challenge of managing a large, complex firm increases dramatically (Jayaraman et al., 2000). These challenges include streamlining operations, lowering costs, and managing an increasing number of employees, products, services, functions, geographies and customers. Further, when a firm makes the transition from private to public, a firm's manager must deal with even more changes as ownership becomes increasingly dispersed and the level of scrutiny on top management increases (He, 2008). Founders often do not have the interest or skill set to focus on these crucial managerial tasks (Willard et al., 1992; Pollock et al. 2009; Kor, 2003; Hambrick & Crozier, 1985).

These founder-related findings are consistent with other research that suggests CEOs lose their value to the firm over time (Henderson et al., 2006). For example, Chen and Hambrick (2012) study the CEOs of S&P 1500 companies and find that performance improves when firms

replace CEOs who are less suited to the conditions at hand and replace them with CEOs who are better suited to those conditions, concluding that "*an executive who is well suited to lead a firm during one period may be ill-suited for the next period*" (Chen & Hambrick, 2012:227). This progression through a firm's life cycle leads to the founder's control dilemma (Wasserman 2017), a scenario in which the firm's future performance is connected with the founder's willingness to cede control of some portion of the firm's decision rights. Considering the distinctive capabilities and managerial limitations of founders, a second-in-command leadership structure appears to be well-suited for founder-led firms as it would allow the founder to delegate operational duties to someone better suited to these tasks while being able to also maintain their position as the firm's top executive.

There are many examples of this in practice. One is when Steve Jobs hired second-in-command Tim Cook, an experienced executive coming from a successful career at Compaq, who nicely complemented the skills of Steve Jobs. Whereas Cook's expertise centered on operations and logistics, Jobs "*at his core was a product person*" (CNBC 2019a) and was a visionary who possessed deep talent in accomplishing the seemingly impossible. Jobs delegated to Cook "*all of the company's worldwide sales and operations*" (Apple, 2005), allowing both individuals to thus focus on their core strengths. A more recent example is Airbnb, where the company's founders, Brian Chesky and Joe Gebbia, had backgrounds in design but had no prior managerial or business experience (in fact, they were so untutored in these areas that they thought people referring to "angel" investors believed in celestial beings – The Economist 2017). As the company continued to grow and prepare for an IPO, the founders hired Belinda Johnson as COO to streamline operations, steer the firm through regulatory opposition, and handle an existential crisis around discriminatory behavior on its platform.

***Founder power/authority*.** In addition to possessing different capabilities, past research also provides several reasons to suggest that founders possess more power and authority in their firms relative to professional CEOs. First, founder-led firms often have corporate governance structures (e.g., dual-class shares, CEO/Chairman duality, etc.) that allow the founder-CEO to exert increased control in the boardroom and within the firm (Nelson 2003; Gao & Jain 2009; Hendricks et al., 2019). Recent evidence suggests that founders are increasingly able to retain formal control of their firms, even as they grow larger, as a result of the increased competition among venture capital firms (Blank, 2017). Second, past research suggests that founders are often associated with charismatic and transformational leadership styles that makes employees and outsiders (e.g., partners or investors) more strongly commit to them and their initiatives relative to other managers (Dobrev & Barnett, 2005; Kark *et al.*, 2003).[13] Third, there is substantial real authority inherent in the role of the founder (Weber, 1968), which links the founder's individual identity with that of the firm and allows the founder to speak for the firm and exert substantial influence over firm behavior (Fahlenbrach 2009).

As a result of this inherent power and authority, issues related to unity of command (i.e., confusions related to who's "in charge") are likely to be less problematic for founder CEOs, as those working in and with the firm will be more likely to recognize and accept their authority. This implies that firms with founder leadership may also avoid much of the destructive infighting often associated with the second-in-command structure (Zhang, 2006; Bennett & Miles, 2006;

[13] Tim Cook's decision to leave Compaq and join Apple provides a notable example of how a founder's visionary leadership may attract employee loyalty. Cook noted that although a purely rational consideration of the costs and benefits lined up in Compaq's favor and that the people he knew best advised him to stay, he joined Apple in 1998 because "*Steve created the whole industry*" and that "*working with a Silicon Valley legend like Jobs would be the privilege of a lifetime*" (CNBC 2019b). This loyalty to Jobs was apparently felt by more than Cook, as one tribute to Jobs noted that "*his instincts have been so unerringly good — and his charisma so powerful — that Apple employees were willing to follow him wherever he led*" (New York Times 2011).

Levinson, 1993). Consistent with this, when Mort Topfer came in as the second-in-command at Dell, he had "*no aspirations of becoming the chief executive officer at Dell*" (Bennett & Miles, 2006), and was instead there to help and mentor the then 29-year old Michael Dell. Similarly, when Joseph Galli took the COO position at Amazon, he recognized that "*given Mr. Bezos's relative youth and role as company founder, succeeding him isn't a big possibility*" (Murray, 2000). Overall, while prior research raises concerns that a second-in-command may reduce unity of command, this risk should be moderated in founder-led firms due to the real authority held by founder CEOs.

In summary, I argue that a second-in-command will be more beneficial for large firms with founder CEOs relative to other firms for two main reasons (see Table 7 for summary). First, because founders often lack the managerial capabilities to lead a large, complex firm, I expect that reducing CEO overload and delegating internal functions to a second-in-command will be more beneficial in founder-led firms. Second, I also argue that the unique power and authority that founders hold within their firms is such that a second-in-command is less likely to result in problems related to unity of command. Based on these arguments, I form the following hypotheses:

> **Hypothesis 1 (H1):** *Firms with Founder CEOs are more likely to have a second-in-command relative to firms without Founder CEOs.*
>
> **Hypothesis 2 (H2):** *The relation between a second-in-command team structure and firm performance will be more positive for founder-led firms.*

METHODS

For the context of my analysis, I rely on IPO firms. This setting provides many advantages for my study. First, organizational complexity increases dramatically at IPO. Although firms likely manage many complex operating tasks prior to going public, these tasks

increase substantially at IPO as the firm's top executives are faced with a more dispersed shareholder base, equity analysts, credit rating agencies, and increased regulatory compliance. Second, the registration statement that firms are required to file with the Securities and Exchange Commission (SEC) when seeking to go public allows me to identify whether a firm has a second-in-command. Although this information is available for all public firms, and not just IPO firms, my use of IPO firms reduces concerns related to selection bias that arise when using samples of seasoned publicly traded firms (Cadman, Klasa, & Matsunaga, 2010). Lastly, by focusing on IPO firms, as opposed to privately held firms, I do not face concerns about selective reporting of firm performance or firm survival. Rather, for each firm in my sample, I am able to obtain objective information about their post-IPO performance via CRSP and Compustat.

I rely on Jay Ritter's IPO data set to attain a list of firms that completed an original initial public offering from January 1, 1997 to December 31, 2013 in the United States. Following prior studies, I exclude financial firms, partnerships, spin-offs, carve-outs, reverse LBOs, ADRs, and unit offers. I also exclude minor offerings (i.e., filings less than $10 million and offers that are priced under $5 per share). I then obtain financial information for each firm using CRSP and Compustat. I use each IPO firm's registration statement filed with the SEC to identify and gather data on the structure and composition of each firm's TMT. There are 2,098 firms that meet the data requirements to be included in my study.

Variables

Firm performance: I operationalize firm performance using the firm's buy-and-hold abnormal returns (*BHAR*). This measure mimics a passive investment strategy in which an investor buys a stock and holds it over a certain period of time (Chatterjee et al., 2003; Loughran & Vijh, 1997). In other words, this measure directly captures the shareholder value created by

top management over the period of interest. I measure *BHAR* from the closing price on the day of the IPO through the earlier of three years from IPO or the firm's delisting. The extended horizon is important as it allows sufficient time for companies to experience the payoffs related to investing the IPO proceeds. To compute this variable, I follow prior research and calculate each firm's gross stock returns over the three years subsequent to the firm's IPO and then subtract out the returns earned from holding the CRSP value-weighted index over the same period. In the event of delisting, I include the firm's delisting return (per CRSP).

Second-in-command is a binary variable equal to one if the firm has a "second-in-command", and zero otherwise. To determine whether a firm has a second-in-command, I gather information on the specific positions included in each firm's top management team from their final registration statement filed with the SEC. Following prior research on second-in-commands (Hambrick & Cannella 2004; Zhang 2006; Marcel, 2009; Krause et al. 2013), I code this variable as one if the registration statement indicates that the top management team includes a Chief Operating Officer (COO) or a non-CEO executive who holds the title of "President." Past research indicates that the roles and responsibilities of these positions are similar and that the second-in-command often holds both titles (Hambrick & Cannella, 2004; Zhang, 2006; Marcel, 2009). Table 8 includes the descriptive statistics for this, and all other variables included in my study. As shown therein, I find that 41% of my sample firms have a second-in-command.

Founder is a binary variable indicating whether the firm has a founder CEO at time of IPO. To determine which firms in my sample have founder CEOs, I follow a multi-stage process. As a first step, I search in each firm's registration statement for sentences that include terms such as "founder", "founded", or "founding." When these words are included in the statement, I read the information carefully to determine whether this indicated that the firm's CEO was a founder.

Next, I analyzed the biographical summaries of each CEO to determine whether an alternative phrase was used (e.g., "started the company") that could indicate the individual was one of the firm's original founders. Finally, in some cases the registration statement did not explicitly state that the CEO was a founder, but the CEO's tenure began at time of founding. In these cases, I conducted an online search to verify whether the person was a founder. Table 8 reveals a 0.13 correlation between *Founder* and *Second-in-Command,* providing initial univariate evidence in support of my first hypothesis that predicts founder-led firms are more likely to have a second-in-command. I perform a more robust multivariate examination of this relation in Section 4.

CEO_Ops is a binary variable equal to one if the CEO has operational experience. To create this variable, I rely on the description of each CEO's background included in the IPO registration statement. Following prior research, I code this condition as one for all CEOs who have an MBA degree, as past research suggests this acts as a proxy for basic business and managerial knowledge (Graham et al., 2015). In addition, if the description includes terms such as "operations," or "operating" then I read the information to determine whether the CEO had previously held the position of Chief Operating Officer, Vice President of Operations, or some related position indicating extensive prior experience managing a firm's operations. Thus, for these CEOs, I also code this variable as one. For all other CEOs, I code this condition as zero. Consistent with Founder CEOs being less likely than other CEOs to have an operations-related functional background, Table 8 reveals a strong negative correlation (i.e., –0.23) between *Founder* and *CEO_Ops.*

CEO_Power is an index variable that measures the influence the CEO has in the organization, with higher values indicating a more powerful CEO and thus less confusion around unity of command. To create this index variable, I first assign each CEO a score of zero. I then

identify several indicators that past literature has identified as contributing to CEO power (Krause et al., 2015), including chair title (with the chair position conferring additional power), firm ownership (with greater ownership indicating greater power), and individual age (with higher age indicating greater perceived power). Thus, if the CEO holds the Chair position then I add one to the *CEO_Power* index. I also add one if the CEO's ownerships stake in the business is greater than any other team member's ownership. Finally, I add one if the CEO is the oldest top management team member. Thus, possible values for this variable range from 0 to 3, with higher values representing a more powerful CEO. Consistent with Founder CEOs having more power relative to other CEOs, Table 8 reveals a strong positive correlation (i.e., 0.29) between *Founder* and *CEO_Power*.

Control variables. I reference prior literature related to post-IPO stock performance to select variables for inclusion in my multivariate analysis (e.g., Gao et al., 2013; Brav & Gompers 1997). In doing so, I rely on commonly applied definitions. Specifically, I use *MVE,* which represents the natural log of a firm's market value of equity plus one, and *BTM,* which represents the firm's book-to-market ratio at IPO. I also control for each firm's position within its life cycle. In particular, I define *R&D_Intensity* as the ratio of each firm's research and development expenses to its book value of assets, and *Startup* as a binary variable equal to one if the firm's total revenues for the year preceding the IPO were under $50 million (Gao et al., 2013). I control for a firm's prior operating performance by including *ROA* (the firm's return on assets over the twelve months prior to the initial public offering), and *AbsROA* (the absolute value of ROA). I also control for each firm's capital structure by including *Leverage*, defined as the ratio of total liabilities to assets.

I also create variables that reflect various aspects of a firm's corporate governance structure. Doing so is important as particular governance structures may restrict the level of control that the CEO can wield in the firm. In particular, I include *VC*, which is a binary variable that takes the value of one if the firm has venture capital funding prior to its initial public offering. I also control for *Dual_Class_Shr,* a binary variable that takes the value of one if the firm has two or more different classes of common shares at IPO, and *Board_Size*, a count of the number of external board members. Lastly, I also control for *CEO_New*, and follow prior literature (Hambrick & Cannella, 2004) by creating a binary variable that takes the value of one if the CEO's tenure was less than three years at IPO.

Research Design - Entropy Balancing

The objective of this paper is to examine two questions: First, *are founders more likely to have a second-in-command relative to other CEOs?* And second, *do founders benefit more from having a second-in-command relative to other CEOs?* To answer these questions in an idealized experimental setting, I would prefer two randomly selected groups of firms that are identical in every respect except that one group has a founder CEO (treatment group) while the other group does not (control group). Because I am unable to construct such a randomized experiment, I address the endogeneity associated with founder leadership via entropy balancing (Hainmueller 2012), a multivariate matching approach that is increasingly being used by researchers seeking to draw causal inference when restricted to using observational data (e.g., Bansak, Hainmueller, & Hangartner 2016; Stanton & Thomas 2016; Shroff, Verdi, & Yost 2017; Jacob et al. 2019).

The first stage of entropy balancing solves a constrained optimization problem to identify a continuous weight for each control group observation while simultaneously seeking to keep the sample as close as possible to equally-weighted (Hainmueller 2012). These continuous weights

adjust exactly to account for inequalities in the first, second, and possibly higher moments of the covariate distributions. By using continuous weights, as opposed to discrete weights, entropy balancing overcomes many of the criticisms of propensity score matching. For example, propensity score matching, while likely being the most commonly used multivariate matching technique, is frequently criticized because minor changes in the first stage of matching can substantially influence sample composition and the resulting inferences (King & Nielsen 2016; Shipman, Swanquist, & Whited 2017; Smith & Todd 2005), a problem overcome by using continuous weights as opposed to discrete. Furthermore, Zhao and Percival (2019) show that entropy balancing is "doubly robust", in the sense that if *either* the first-stage model used to determine the continuous weights or the second-stage model used to estimate the average treatment effect is correctly specified then entropy balancing provides a consistent estimator of the average treatment effect. Although entropy balancing (and other similar synthetic control methods) is not a perfect way to estimate causality, Athey and Imbens (2017) suggest that these techniques are "arguably the most important innovation in the policy evaluation literature in the last 15 years."

Table 9 provides descriptive statistics for firms with and without founder CEOs separately, with *t-tests* for differences in means. These tests reveal that firm characteristics differ substantially across the two groups. For example, firms with founder leadership tend to have lower revenues (*Startup*) and are less profitable (*ROA*). In addition, Table 9 also reveals that the characteristics of founder CEOs tend to differ from the characteristics of other CEOs. For example, and consistent with the arguments used to form my hypotheses, I find that founders generally have less operations-related functional backgrounds (*CEO_Ops*) and wield increased control within their organization, as measured by *CEO_Power*.

To mitigate concerns related to these differences between the firms with and without Founder CEOs, I use entropy balancing to re-weight each control group observation. As shown in Table 9, after applying the continuous weights determined by the first stage of the entropy balancing process, I find that the mean value for each observable variable for founder-led firms is exactly equal to the mean value for the weighted sample of non-founder firms. Further, the standard deviation and skewness of these distributions show insignificant differences between the treatment and control group. By achieving covariate balance between the two groups, this multivariate matching technique reduces model dependency for the subsequent estimation of treatment effects.

RESULTS

Testing Whether Founders are More Likely to Have a Second-in-Command (H1)

Hypothesis 1 examines whether founder CEOs are more likely than other CEOs to have a second-in-command. I examine this hypothesis by estimating the following OLS model:

$$Second\_in\_Command = \beta_0 + \beta_1\ Founder + \beta_{2\text{-}14}\ Controls + Fixed\ Effects + \varepsilon_i \quad \textbf{(1)}$$

where *Second-in-Command* equals one if the firm has a COO or President on its top management team, and zero otherwise. My variable of interest, *Founder*, equals one if the IPO firm has a founder-CEO, and zero otherwise. I also include all of the control variables previously motivated. The model also includes time (calendar year) and industry (Fama-French 12-industry classifications) fixed effects. Finally, in this and all other specifications, I cluster-robust standard errors by both industry (Fama-French 48-industry classifications) and time (calendar quarter-year) (Petersen 2009).

The results of estimating Equation 1 are presented in Table 10.[14] Column 1 reveals the baseline results of estimating Equation (1), before including the continuous weights from entropy balancing. Hypothesis 1 predicts that founders will be more likely to have a second-in-command. In support of this prediction, I find that the relationship between *Founder* and *Second_in_Command* is positive (i.e., β_1 = 0.1268, p-value = 0.000). Consistent with Hambrick and Cannella (2004), my results also reveal that several control variables have statistically significant relations with the presence of a second-in-command. For example, the coefficient for *CEO_Ops* is -0.0449 (p=0.014), revealing that firms with CEOs that do not have an operations-related functional background are more likely to have a second-in-command. Also, *R&D_Intensity* has a coefficient of -0.2817 (p=0.000), suggesting that research-intensive (and thus less operationally-intensive) firms are less likely to have a second-in-command. Lastly, consistent with firm size and complexity increasing the need for a second-in-command, I find that the coefficient for *MVE* is also positive (i.e., 0.0288, p-value = 0.005).

Column 2 re-estimates Equation 1 after using the continuous weights obtained from the entropy balancing process. Similar to the results tabulated in Column 1, I find that the relation between *Founder* and *Second_in_Command* is positive (i.e., β_1 = 0.0914, p-value = 0.001). This finding is not only statistically significant, but also indicates a substantial real effect. In particular, considering the unconditional mean for *Second-in-Command* is only 41 percent (Table 8), the estimated coefficient for *Founder* in Column 2 suggests that founder leadership is associated with a 22.2 percent increase (i.e., 9.1% / 41%) in the probability that a firm will have

[14] I use a linear probability model to estimate Equation (1). Although Probit models are frequently used when the dependent variable is binary, the inclusion of fixed effects in Equation (1) introduces concerns that the Probit model will provide biased or inconsistent coefficients (Greene 2004). Nonetheless, untabulated findings in which I use a Probit model yield the same inferences as those based on tabulated findings.

a second-in-command. Overall, Column 2 provides compelling support for my hypothesis that founder-CEOs are more likely than other CEOs to have a second-in-command.

Testing Whether Founders Benefit More from Having a Second-in-Command (H2)

Hypothesis 2 examines whether a second-in-command has a more positive relation to firm performance for founder-led firms than it does for firms without a founder CEO. To do so, I first partition firms into two groups based on whether they do or do not have a founder CEO. I then estimate the following OLS model for each partition of firms:

$$BHAR = \beta_0 + \beta_1 Second\_in\_Command + \beta_{2\text{-}14} Controls + Fixed\ Effects + \varepsilon_i \quad \textbf{(2)}$$

where all variables are as previously described. My variable of interest for Hypothesis 2 is *Second_in_Command*. Similar to my prior analysis, I include each of the previously motivated control variables in Equation (2), and continue to include time and industry fixed effects and cluster-robust standard errors by both industry and time.

I used entropy balancing to achieve covariate balance between firms with and without founder leadership when examining H1. However, because I partition my firms by founder classification when examining H2, I do not need to conduct entropy balancing to account for the differences between firms with and without founder leadership because there are no differences in founder classification *within* each of the two partitions. However, my results for H1 suggest that having a second-in-command is also endogenous. Thus, before I estimate Equation 2, I first examine the similarity of firms with and without a second-in-command within each partition of firms. Panel A of Table 11 provides descriptive statistics and accompanying *t-tests* that examine the differences in mean values between founder-led firms with a second-in-command and founder-led firms without a second-in-command. As shown therein, there are large differences

among the two partitions of firms (i.e., the p-values for tests of *CEO_Power*, *Startup*, *MVE*, *ROA*, *Abs(ROA)*, *R&D_Intensity*, *Leverage*, *VC*, and *Dual_Class_Shares* are all below at least 0.10). Thus, I again use entropy balancing to reduce this covariate imbalance between the treatment group (i.e., founder-led firms with a second-in-command) and the control group (i.e., founder-led firms without a second-in-command). As before, by applying the continuous weights determined by the entropy balancing process to the group of 440 control firms, the mean value for each variable is now the same for the treatment and control groups. Panel A of Table 11 also reveals increased similarity in the standard deviation and skewness for each variable. I also follow this process for the partition of firms without founder leadership, documenting the descriptive statistics both prior to and after entropy balancing in Panel B of Table 11.

Column 1 of Table 12 presents the results of estimating Equation 2 for the sample of founder-led firms, using the continuous weights determined from the entropy balancing process (Panel A of Table 11). As revealed therein, Column 1 reports that the performance of founder-led firms is *higher* when a second-in-command is present (i.e., $B = 0.1380$, p-value = 0.077). I then test whether this also holds true for the subset of non-founder-led firms, again using continuous weights as determined from the entropy balancing process (Panel B of Table 11). Column 2 of Table 12 presents these results, revealing that the performance of non-founder-led firms is *lower* when a second-in-command is present (i.e., $B = -0.2715$, p-value = 0.001). Overall, the results of Columns 1 and 2 of Table 12 are consistent with Hypothesis 2 and suggest that while the performance of non-founder-led firms is harmed by the presence of a second-in-command (consistent with prior literature – Hambrick & Cannella, 2004), the performance of founder-led firms is higher when a second-in-command is present.

To ease the interpretation of the Table 12 findings, Figure 4 depicts the results. The Y-axis represents firm performance (i.e., *BHAR*) and the X-axis represents the presence or absence of a second-in-command. The lines then represent the marginal effect of a second-in-command on firm performance by founder CEO classification. The solid line represents the results for founder-led firms, as documented in Column 1 of Table 12, whereas the dashed line represents the results for non-founder-led firms as documented in Column 2 of Table 12. Support for Hypothesis 2 is shown by the stark difference in the slopes of these two lines. These findings thus suggest that founder leadership acts as an important boundary condition to prior research that finds a negative relation between a second-in-command and firm performance.

Supplemental Analysis: Testing the Mechanisms

My hypotheses suggest that founders will benefit more from a second-in-command for two main reasons (see Table 7). First, because founders often lack the operational and managerial capabilities needed to run a large, complex firm, I expect that delegating internal functions to a second-in-command is especially crucial in founder-led firms. I also argue that the unique power and authority that founders hold within their firms is such that a second-in-command is less likely to result in problems related to unity of command. Although the results from Table 12 are consistent with this general logic, I now seek to understand whether either of the two proposed mechanisms help explain the Table 12 findings.

To do so, I exploit variation within my group of firms with founder CEOs. While I argue above that founders possess fewer operational and managerial capabilities relative to professional CEOs *on average*, this is not always the case. Founders come from a variety of backgrounds (Klotz et al., 2014; Beckman, 2006; Amason et al., 2006), and some may come from a strong background in operations or management. These founders will be more likely to

possess the capabilities needed to lead a company through its later stages of growth, and as such, the value added by a second-in-command should be reduced. Thus, I explore this relation by altering Equation 2 to include an interaction between *Second_in_Command* and *CEO_ Ops*.

Column 1 of Table 13 provides the results of estimating this equation for the partition of founder-led firms. As shown therein, the interaction between *Second_in_Command* and *CEO_Ops* is positive and significant (i.e., B = -0.3366, p-value = 0.009). This finding provides empirical evidence to support my proposed mechanism that a second-in-command is less beneficial in founder-led firms when the founder has an operations-based functional background.

To examine the second mechanism (i.e., founder power), I further exploit variation within founders. In particular, past research suggests that although founders hold more control over their firms relative to professional CEOs on average, there is substantial variation among founder-led firms in regards to the amount of control the founder CEO actually holds (Wasserman 2017). In particular, some founders are highly resistant to give up any control over their organization, describing such a decision as akin to "giving up part of 'their baby'" (Lim et al., 2013). However, other founders exhibit an increased willingness to cede a portion of their organizational control to better attract key resources from co-founders, key hires, partners, and investors. If founders' unique power and authority helps mitigate problems around unity of command then the positive effect of a second-in-command on performance should be particularly high for the sub-set of founders who retain more power in their organizations.

To test this, I alter Equation 2 to include an interaction between *Second_in_Command* and *CEO_Power*. Column 2 of Table 13 provides the results of estimating this equation for the partition of founder-led firms. As shown therein, the interaction between *Second_in_Command* and *CEO_Power* is positive and significant (i.e., B = 0.2743, p-value = 0.041). This finding

suggests that a second-in-command is more beneficial in founder-led firms when the founder CEO holds more power, thus removing confusion about who is really "in charge".

DISCUSSION

As a firm grows and becomes more complex, it becomes increasingly difficult for founders to manage the organization. In many high-profile founder-led firms (e.g., Facebook, Apple, Microsoft, Amazon, etc.), the founders have hired a "second-in-command" with expertise that complements their own, perhaps in an effort to compensate for their own managerial limitations. Surprisingly, however, little is known regarding the prevalence of the second-in-command team structure in founder-led firms, or whether it influences firm performance. My study provides insight into these questions.

My results indicate that founders that hold the CEO position in large firms are much more likely to work with a second-in-command relative to non-founder CEOs. Furthermore, I find that, relative to firms without founder leadership, the performance of founder-led firms benefit more from having a second-in-command. Specifically, I find that although the performance of non-founder firms appears to be adversely affected by a second-in-command (consistent with prior findings – Hambrick & Cannella, 2004), the performance of large firms with founder CEOs is higher when a second-in-command is present. Furthermore, I also identify two important boundary conditions, namely: CEO functional background and CEO power, which moderate the extent of this relation for founder-led firms. Together, my results contribute to the existing literature by highlighting stark and significant differences in how founders and non-founders structure and benefit from their top management teams. More generally, my study adds new contributions to the entrepreneurship and upper echelons literatures.

Contributions to the Entrepreneurship Literature

First, my study contributes to the literature on entrepreneurial growth. The issue of managing firm growth is deeply embedded in the literature on entrepreneurship (DeSantola & Gulati 2017). Due to their smaller size, new ventures can experience growth rates that far surpass mature firms, meaning the need for changes and adjustments happens rapidly and continuously. Because of this, past research often suggests that founders must relinquish their original vision for the company and cede control to more experienced managers. My study, however, suggests that founders may be able to find some middle ground – or in other words, they may be able to structure the firm's top management team in a way that allows them to strike a balance between both stability and change. Overall, this study contributes and extends existing research on entrepreneurial growth by showing specific ways in which entrepreneurs resolve the challenge of balancing stability and change – namely, by relying on a second-in-command.

In addition, this study contributes to the entrepreneurship literature by revealing additional strategies founders use to retain control as their firms grow. The "Rich vs. King" view in entrepreneurship suggests that it becomes increasingly difficult for founders to retain control as a firm grows (Wasserman, 2017). Thus, entrepreneurs of high-growth firms face a dilemma, in that they can either choose to cede control of their organization in hopes of becoming "rich" or retain substantial control of the firm's decision rights ("king"), but at the expense of firm growth. Recently, however, more studies have documented various ways in which founders can be both rich *and* king. For example, there has been a recent trend of founders retaining decision-making authority through unusual equity or voting structures such as dual class shares (Blank 2017; Fattoum-Guedri et al. 2018), which allow the founder to give up large portions of equity while still retaining control of the firm's voting rights. This study provides evidence of another

potential strategy: hiring a second-in-command. Results suggest that hiring a second-in-command may be one way that founders can continue to retain control of their organizations (by maintaining the CEO position) while still getting the managerial expertise required to grow their companies (by hiring a second-in-command). Overall, these insights suggest that founders may pursue internal strategies of retaining control that complement (or potentially substitute) other strategies that founders use to retain control over external stakeholders (e.g., dual-class shares).

Contributions to the Upper Echelons Literature

The influence of the "organizational elite" on firm performance is of fundamental importance to strategic management. In order to truly understand why organizations do the things they do or perform the way they do, one must study their most powerful actors (i.e., their top executives) (Hambrick 2007). I make an important contribution to the upper echelons literature by exploring the antecedents of team structure. Much of the TMT literature has studied the *consequences* of TMT structure in depth (see Carpenter, Geletkanycz, & Sanders 2004 and Certo et al., 2006 for reviews). However, very few studies have addressed the factors *influencing* TMT structure. Noting this deficiency, Pettigrew (1992:176) argued that an unanswered question in the literature is "*why do teams look the way they do?*" Later, Hambrick (2007) acknowledged this same deficiency in the literature and argued that by treating elements of TMT structure as dependent variables I would open up new avenues for thinking about intraorganizational power struggles and how executives' characteristics influence organizational outcomes. I answer these calls by exploring how one important characteristic – the founder status of a firm – has a significant influence on the structure of the TMT (specifically, the presence of a second-in-command). By so doing, I offer empirical evidence of why some TMTs are structured differently than others.

Second, I offer evidence of a key contingency factor for the second-in-command/firm performance relation. Other than a few notable exceptions (e.g., Hambrick & Cannella, 2004; Zhang, 2006; Marcel, 2009), the second-in-command phenomenon has been relatively understudied in the upper echelons literature. The few studies that do exist provide mixed results as to the effect of a second-in-command on firm performance. Hambrick and Cannella (2004), for example, employed contingency theory and performed over 30 different interactions to examine whether a second-in-command might be more favorable under certain conditions. However, they found no combination of conditions in which the second-in-command approach was positively associated with firm performance. I thus extend these findings and contribute to this body of research by showing how one key condition – the founder status of the CEO – moderates the relation between a second-in-command and firm performance. Future research should continue to explore whether other mechanisms are at play as well.

Finally, my study contributes to the literature on the "CEO-TMT interface" (Ma & Seidl 2018; Peterson et al. 2003; Carmeli et al. 2011). Although a great number of studies have addressed top management teams, the majority of these studies focus either on a single executive (e.g., the CEO) or the TMT as a whole, in which the CEO is simply included as a member of the group and his or her characteristics are averaged with the overall group (Jackson 1992). Yet, comparatively little research has been done on the interaction between the top executive and his or her team, and specifically on how the top executive chooses to structure, manage, and lead their team (Peterson et al. 2003; Hambrick 1994). My study helps fill this gap and contributes to the literature by analyzing how the unique preferences and biases of founder CEOs might shape the TMT.

CONCLUSION

Founders encounter significant challenges as their firms mature and increase in complexity. As a result, founders that hold the CEO position in large firms are often encouraged to hire a second-in-command with expertise that complements their own. Surprisingly, however, no research examines the prevalence or implications of the second-in-command role in founder-led firms. Using a sample of over 2,000 IPO firms, I address this gap and find that founder-led firms are more likely to hire a second-in-command relative to other large firms. Further, and in stark contrast to firms without founder CEOs that perform worse when a second-in-command is present, I find that large firms with founder leadership perform better when a second-in-command is present. However, I also identify two important boundary conditions, namely: CEO functional background and CEO power, which moderate the extent of this relation. Taken together, my findings provide new empirical evidence that founders both structure and benefit from their top management teams differently relative to firms without founder leadership.

CHAPTER 4: COWORKING COMMUNITIES WORKING ALONE, TOGETHER

ABSTRACT

In the past decade, coworking spaces have emerged as a new and promising phenomenon within entrepreneurship. Due to its prevalence, popularity, and potential for disruptive change, coworking is increasingly relevant to theory, practice, and policy in entrepreneurship, yet its implications are largely unstudied given the rapid rise of the phenomenon. Overall, more research is needed to inform owners, policy makers, and entrepreneurs regarding the effects of coworking. This study takes an exploratory empirical approach with the goal of shedding light on the current landscape of coworking. By so doing, I provide an initial foundation for research on the coworking movement, the conditions under which it may improve entrepreneurial outcomes, and the various research streams it can enrich.

INTRODUCTION

In the past decade, a relatively new and promising phenomenon has emerged within entrepreneurship. I refer to coworking spaces, or *membership-based workspaces in which diverse groups of individuals and teams assemble to work on their independent projects in a shared, communal space*. The typical users of coworking spaces include entrepreneurs, freelancers, remote workers, and other independent or nontraditional workers. These individuals are often not able to afford their own office space, and thus coworking spaces offer a solution. In addition to the space itself, coworking offers a community of other entrepreneurs, all working separately on their own ventures, but working together in the same space.

Though coworking holds considerable promise, the concept is still relatively new. Mostly unheard of ten years ago, the global number of coworking spaces has grown dramatically in recent years. For example, the Global Coworking Survey (Deskmag, 2019) estimated that only about 160 coworking spaces existed worldwide in 2008, whereas in 2018 there were close to 19,000 (see Figure 5). As entrepreneurs (especially millennials) continue to embrace coworking, investors have taken notice. For example, from 2017-2018 SoftBank invested more than $7 billion in WeWork, the world's leading coworking provider, making it the most valuable startup in the United States. Many of the world's largest landlords are also beginning to invest heavily in coworking spaces as they have been one of the "few bright spots in the office-market during the economic recovery," making them "one of the few sources of demand" (Wall Street Journal, 2018a). As coworking has become more popular, a growing number of entrepreneurial websites, blogs, magazines, and other news sources have addressed the recent trends in coworking and discussed what it might mean for entrepreneurship and the future of work. Overall, many

consider the rise of coworking to be one of the most prevalent trends in recent entrepreneurial activity (Kreamer, 2012).

Due to its prevalence, popularity, and potential for disruptive change, coworking is increasingly relevant to theory, practice, and policy in entrepreneurship, yet its implications are largely unstudied given the rapid rise of the phenomenon. Although some work addresses the implications of accelerators and incubators (Cohen, Bingham, and Hallen, 2018; Hallen, Cohen, and Bingham, 2018), coworking spaces are different in fundamental ways, and thus require separate attention. Additional research is required to inform practice, which is increasingly embracing coworking. Numerous entrepreneurial news sources have addressed coworking, attempting to advise entrepreneurs as to whether coworking is right for them, and if so, which space is best. However, these sources are often limited to anecdotal evidence, meaning little data is available to advise entrepreneurs.

Furthermore, in addition to informing entrepreneurs, additional research on coworking is necessary to inform policymakers. Because the coworking industry as we know it is relatively new, it has not yet gone through a full economic cycle. Once a recession or other shock occurs[15], the coworking industry will likely experience consolidation (Klepper, 1996). Many coworking spaces are currently funded either fully or partially by local governments, universities, and corporations, and these stakeholders will be forced to decide whether these spaces are worthy of continual funding.

[15] One recent example is the case of the COVID-19 virus, which forced many coworking spaces to close their doors as various national and local governments issued "stay-at-home" orders. While the fallout from this virus is still evolving, it will likely have a large impact on the coworking industry.

Overall, more data and analysis are needed to inform owners, policy makers, entrepreneurs, and researchers regarding the effects of coworking. Given the urgency of studying the coworking phenomenon now, I follow the example of past studies examining early-stage entrepreneurial phenomenon such as crowdfunding (Mollick, 2014), accelerators (Cohen et al., 2019a), and the maker movement (Browder, Aldrich, and Bradley, 2019) by mapping the current landscape of coworking spaces and describing how it may affect new venture creation. By so doing, I provide an initial foundation for studying the coworking movement, the conditions under which it may improve entrepreneurial outcomes, and the various research streams it can enrich.

PAST RESEARCH ON COWORKING

Despite the explosive growth in the number of coworking spaces, very little academic research addresses the phenomenon. To date, Gretchen Spreitzer and colleagues (Spreitzer et al., 2015a; Spreitzer et al., 2015b; Garrett, Spreitzer, and Bacevice, 2017) are the only ones to directly address coworking in the management literature. Two of these studies are published in practitioner journals and focus on gauging the job satisfaction of freelancers in coworking spaces (Spreitzer et al., 2015a) and advising large corporations if coworking is right for them (Spreitzer et al., 2015b). For example, Spreitzer et al., 2015a find that freelancers can thrive in coworking spaces, as they see their work as meaningful, have more job control, and feel part of a community. Spreitzer et al., 2015b, in contrast, focus on how large corporations can benefit from coworking, finding that when they send employees to work in coworking spaces, it can help the employees tap into new ideas, reduce real estate costs, and improve employee job satisfaction. Although these studies validate the coworking phenomenon and provide valuable advice to practitioners, they are based on limited data. Their third study (Garrett et al., 2017) explores the

formation process of a small coworking space in the Midwestern United States. Once again, however, the research is based on limited evidence (19 interviews) and the authors readily acknowledge the limited scope of their study and express hope that future studies will explore "the growing trend of coworking" (Garrett et al., 2017:839).

Though few studies examine the coworking phenomenon directly, some management studies examine it indirectly by collecting data on entrepreneurs within coworking spaces (e.g., Kim and Lim, 2019). These studies use coworking spaces for their sample selection, and the research question does not focus on the coworking space itself or its implications for entrepreneurs. A handful of conceptual studies in other fields explore coworking (Spinuzzi, 2012; Bouncken and Reuschl, 2018; Parrino, 2015). Similarly, however, these studies are typically limited to anecdotes or conjectures, and often end by calling for more empirical research on the coworking phenomenon. Overall, while these studies once again validate coworking as an increasingly important phenomenon, we lack a broader and more high-level exploration of the coworking movement and its implications.

DATA AND METHODS

Given the lack of prior research and data on coworking, this study takes an exploratory empirical approach. The goal of such an approach is to shed light on the ways in which coworking spaces operate relative to other common entrepreneurial organizations (e.g., accelerators, incubators, etc.), as well as developing initial evidence about the nature of coworking and its role in entrepreneurship research. An exploratory method such as this is appropriate for an evolving topic in the evolving field of entrepreneurship (Mollick, 2014; Aldrich and Baker, 2000; Busenitz et al., 2003; Cornelius, 2006), as this initial data and theory can serve as a useful foundation for future empirical testing and theory-building (Eisenhardt,

1989). Thus, rather than forming and testing formal hypotheses, the remainder of the paper examines the main implications of coworking from the perspective of entrepreneurship, and its links to existing research and theory. Other recent papers that follow similar approaches include Mollick (2014) who studies the crowdfunding phenomenon, Cohen et al. (2019a) who study the accelerator phenomenon, and Browder et al. (2019) who study the maker space phenomenon.

Given the nascent nature of the phenomenon, I perform a mixed methods analysis by relying on data from two sources. The first is a large-scale, publicly available dataset of coworking spaces throughout the globe compiled by the coworking magazine Deskmag. The second is a hand-collected dataset, including both quantitative and qualitative information from a large coworking space in the eastern United States. I describe both of these below.

Deskmag Data

Deskmag is a Berlin-based coworking magazine that publishes articles and information about the state of coworking, its people, and its spaces. Deskmag is generally considered the leading source of information on the global state of coworking (Wall Street Journal, 2018b; New York Times, 2014). Each year the organization performs the Global Coworking Survey, the purpose of which is to describe the state of coworking spaces themselves, their users, and their managers. The first survey, conducted in December 2010, received responses from 661 individuals in 24 countries. The number of participants grew in future years, and the 2019 Global Coworking Survey included 2,668 respondents. Respondents include a mix of coworking space managers or operators (55% of respondents for 2019), coworking space members (39%), and future or planned coworking spaces (6%). The respondents also come from a wide variety of countries. For example, in the 2019 Global Coworking Survey, 32% of respondents came from North America, 30% from Europe, 19% from Asia, 12% from South America, 4% from Africa,

and 3% from Oceania (Deskmag, 2018). Respondents are anonymous, and Deskmag uses a variety of techniques to ensure no bots or fake participants are included in the final statistics.

The annual survey includes questions about a wide variety of topics, including design features, owners and sponsors, member demographics, monthly fees, costs, profitability, key challenges and opportunities, expectations for the future, and other key metrics. Deskmag publishes several reports each year that include the descriptive statistics and insights from these surveys. Coworking managers and operators throughout the globe rely on these reports to benchmark themselves against other spaces and to form their own strategies. Overall, due to the newness of the coworking phenomenon, the number of survey respondents, and other technical issues, it is impossible to pinpoint exactly how representative the Global Coworking Survey is. However, though the survey is far from perfect, the Global Coworking Survey is currently the most advanced effort to understand the state of coworking and can provide key insights in terms of global trends and relationships.

In addition to the Global Coworking Survey, Deskmag collects, publishes, and curates a large amount of information about coworking on its online platform. This includes information on upcoming coworking conferences and events, as well as coworking news, blogs, and other online publications related to coworking. These online materials contain a rich overview of the history and timeline of coworking. In my study, I rely on this information in addition to the statistics provided from the Global Coworking Survey.

Coworking Central Dataset

To supplement the Deskmag data, I also performed a deep dive analysis in one large coworking space that I refer to as Coworking Central (pseudonym). Located in the eastern

United States, Coworking Central began operations in 2010 and rents space across four floors of a downtown office building. Each floor consists of a mix of common areas (wide, open spaces with couches, chairs and tables) as well as small private offices. Tenants can pay a small monthly fee for the right to work anywhere in the common areas, and for a higher monthly fee members can rent one of the small private offices (usually holding between 2-10 people) that are designated only for them and their team. Each floor also has conference rooms that groups can schedule for meetings, and small call rooms that individuals can schedule to make phone or video calls. In terms of other amenities, a Coworking Central membership comes with free coffee, WiFi, facilities maintenance, security, and a stocked snack bar. In terms of décor and ambiance, Coworking Central attempts to resemble a "Silicon Valley" startup culture, and thus designs their space with many stereotypical startup features including ping-pong tables, arcade machines, beanbag chairs, Star Wars and Super Mario décor, and a giant slide that connects the first and second floors of the building. All of this is meant to contrast sharply with corporate offices, and thus appeal more to entrepreneurs and other nontraditional workers who often value a more creative and individualistic environment.

From 2017 to 2019, I worked with the managers of Coworking Central to collect data from a variety of sources:

Surveys: For each of these three years I administered an annual survey to all 800+ individuals working in the space. The survey focused on questions related to coworking. Specifically, why the individuals had chosen to work at the space, what aspects of the space were most important to them, what percentage of their customers, employees, and investors they found through connections with the space, how actively involved they are in the coworking community, the number of hours they spend at the space per week, and other related items. I also

collected basic demographic information on the individuals and teams working in the space (age, race, gender, experience, titles, etc.) as well as basic performance information on their companies (age, stage of development, revenue, funding, employees, etc.).

For the first survey (in 2017), there were 884 individuals working in the space and I received responses from 336 individuals, for a response rate of 38%. The number of individuals working in the space decreased in 2018 to 781 and I received responses from 233 of those individuals for a response rate of 30%. In the third annual survey (2019), the number of individuals once again decreased to 612, and I received responses from 178 of them for a response rate of 29%. In terms of companies, there were 247 companies working in the space in 2017 and I received company-level information on 133 of them, for a response rate of 54%. In 2018, there were 224 companies in the space, and I received company-level information on 109 of them for a response rate of 49%. In 2019, there were 157 companies in the space, and I received company-level information on 76 of them for a response rate of 48%. Table 14 summarizes this information, and Table 15 provides descriptive statistics for the respondents.

Interviews. In addition to the surveys, I performed over 60 semi-structured interviews with individual founders working at the space. These interviews generally lasted 30-60 minutes, for an average of 45 minutes. I followed an interview guide, which I modified throughout data collection to address emerging themes. In these interviews, I first asked the entrepreneurs to describe their venture and give a brief history. I then asked why they had initially chosen to work at the space, where they had worked before coming to the coworking space, what would make them leave the community, what they viewed as the primary advantages of working there, and what they viewed as the downsides of working in a coworking space as opposed to elsewhere. As is common with interview data, a crucial aspect of this data collection was iteration. The

process involved consistent iteration between theory, data, and extant research. This iteration allowed me to delve deeper into emerging themes within my interviews and re-examine whether these themes fit with the new data I was collecting.

Archival documents. Third, I relied on archival documents obtained from various sources. Mainly, I analyzed the conversations that occurred in roughly 2,000 emails on the coworking space's listserv. These conversations primarily included entrepreneurs asking for advice, seeking connections, or setting up events and get-togethers. Analyzing these emails gave me a better understanding of how the community was interacting. In addition, I relied on documents obtained from the space's website, local and national news articles written about the space, and internal reports from the coworking space's management.

Other. Fourth, I spent over 100 hours working on-site and attending events at the coworking space. Spending time in the space myself gave me a better idea of what it is like for these entrepreneurs to work there, and to a certain degree, it allowed me to experience what they experience.

THE COWORKING MOVEMENT

In the sections that follow, I rely on the data from both Deskmag as well as Coworking Central to illustrate the emergence of the coworking phenomenon and its key drivers. I then focus on design choice made by coworking spaces, as well as their sponsors and owners. Following these descriptions, I discuss how coworking spaces differ from other entrepreneurial support organizations (e.g., accelerators, incubators, etc.). Finally, I end with the key implications of coworking for founders and their new ventures.

Emergence and Growth of the Coworking Movement

In the United States, Brad Neuberg is generally credited with introducing the formal concept of coworking in 2005 when he organized Spiral Muse in San Francisco (Deskmag, 2013). I interviewed Brad in 2018, and asked him about the founding story. He explained how as a software developer, he craved "*the community and structure of a job, but the freedom and independence of working for myself*." Therefore, as an experiment, he rented a small room and furnished it with a few simple desks and chairs. He then placed an ad on Craigslist and handed out flyers at coffee shops, encouraging people to show up and work on their own projects in the same space as him. As the space and the concept grew more popular, Brad teamed up with two other individuals to start a coworking conference and coworking Wiki (both still operational today), with the purpose of encouraging others to start their own spaces and share best practices. This sparked a coworking movement, with thousands of new spaces forming over the next several years (see Figure 5).

Over time, the coworking movement became more structured and cohesive. In 2009, the Global Coworking Unconference Conference (GCUC) began holding coworking conferences throughout the globe in an effort to bring coworking space operators together to network and share ideas. Deskmag, the coworking magazine described earlier, began operations in 2010 and performed their first annual survey of coworking spaces in that year. WeWork also began operations in 2010, rapidly attracting venture capital investment and growing rapidly. WeWork quickly became the most well-known and valuable coworking company, raising public awareness of the coworking concept and prompting many new entrants to copy their strategy and style. At the end of 2018, it was estimated that 1.7 million people were working in coworking spaces worldwide (Deskmag, 2018).

Drivers of the Coworking Movement

The coworking movement has largely been fueled by the overall changing nature of work. Though there are conflicting estimates on the extent of the change, most data sources agree that there has been a large shift from traditional work (i.e., standard full-time employment) to *nontraditional* work (i.e., work that is alternative, market mediated, vulnerable, contract, freelance, e-lance, contingent, disposable, or temporary – Ashford et al., 2007). The most authoritative source to date is Katz and Krueger (2016). The authors conducted a large national survey and found that independent workers represent more than 15 percent of the U.S. labor market, and that they account for somewhere between 80 and 100 percent of the net employment growth since 2005[16]. This monumental shift is driving the demand for alternative workspace options, as nontraditional workers have no full-time employers or dedicated office space. Overall, this shift from traditional to nontraditional work is the result of many factors, which I elaborate on below (see Table 16 for more details):

Technology: Though nonstandard work has historically been difficult to find, recent technological advances make it much easier. These include social media, online ads or job boards, sharing economy websites or apps, and online freelance marketplaces or platforms (Upwork, Freelancer, 99designs, etc.). These online platforms allow users to connect with a broad range of job opportunities with varying levels of specialization and experience. For example, this might include simple tasks such as delivering items from point A to point B, or

[16] Other studies also provide evidence a huge surge in independent workers. For example, the Freelancing in America (2017) survey found that 57.3 million people did some type of independent work in 2017, and that the independent workforce grew at a rate three times faster than the U.S. workforce overall since 2014. Another report conducted by the McKinsey Global Institute (MGI) found that independent workers make up 20 to 30 percent of the working age population in the U.S. and the EU-15, representing up to 162 million individuals (MGI, 2016). In another study, the U.S. General Social Survey estimated that the number of individuals employed in nonstandard work was as high as 40.4% in 2010 (Government Accountability Office, 2015).

they may include more complex tasks such as legal or tax services. Larger companies are also beginning to source labor from these online platforms. For example, the Oxford Internet Institute found that the number of projects that corporations were sourcing from these platforms increased 26% from 2016 to 2017, with popular categories being software development, creative and design, and writing (Corporaal and Lehdonvirta, 2017). These technologies will continue to advance and develop, likely making it even easier to find opportunities for nonstandard work.

Demographics: Compared to prior generations, prior research suggests that Millennials prefer more autonomy, career flexibility, casual and fun work environments, flexible hours, and "results-only" work policies in which they are free to choose how, when, and where to go about their work as long as they meet certain criteria (Alsop, 2008). All of these factors are driving more Millennials to nonstandard work – in fact, the Freelancing in America (2017) survey found that 47% of 18-34 year-olds do some form of nonstandard work at least part-time, compared to only 27% of people over 45.

Nonwage benefits: Many people opt for standard employment for nonwage benefits, with health insurance being the most notable. However, in recent decades, the number of employers providing these benefits is steadily declining (Farber and Levy, 2000; Pierce, 2001). In addition, the passage of the Affordable Care Act (ACA) in the United States made it even more costly for employers to offer benefits to standard workers, as well as making it easier for nonstandard workers to obtain access to health insurance. This creates incentives for firms to use more contractor work and outsourcing (Bidwell et al., 2013).

Stigma: In the past, a negative stigma surrounded non-standard workers, viewing them as marginalized people in peripheral jobs (Ashford et al., 2007). In recent years, however, this stigma is beginning to dissipate as more "supertemps" (e.g., top managers and professionals such

as lawyers, CFOs, and consultants) enter nontraditional work (Miller and Miller, 2012). This has helped add legitimacy and even prestige to nonstandard work. This same sentiment is also evident in the Freelancing in America (2017) survey, in which 70.0% of respondents agreed that perceptions of nonstandard careers are becoming more positive.

In summary, several macro-level changes in technology, demographics, non-wage benefits, and stigma are fueling the shift from traditional to nontraditional work. In the past, these nontraditional workers faced a lack of workspace options, usually being required to work at home, in a coffee shop, library, or other public space. However, as the nature of work changed rapidly with a large shift to nontraditional workers, coworking spaces have emerged as a direct response and alternative workspace for these individuals. If these current trends continue as expected (Kreamer, 2012; Spreitzer et al., 2015a), coworking may become even more needful and popular.

Design Features of Coworking Spaces

On the surface, all coworking spaces appear similar as they all bring together a diverse group of entrepreneurs and other nontraditional workers in a shared, communal space. However, this definition masks a wealth of variation within the coworking concept. As the coworking movement gained traction, variations on the coworking concept began to emerge. A variety of coworking spaces now exist that differ in the types of resources, atmosphere, and other important criteria. This means that the selection of a coworking space is not simply a matter of proximate location to the founder (or even overall reputation or quality of resources), but also one of fit between a founder's needs and the opportunities made available by the space. In this section, I discuss various design features of coworking spaces and how they might affect entrepreneurs' coworking experience (see Table 17 for summary).

Private offices vs. open space. As of 2018, the average coworking space had an average of 8,536 square feet of space, with a median of 4,940 square feet (Deskmag, 2018). Within that space, however, coworking spaces vary in their types of offerings. Most coworking spaces have large, open areas with desks, tables, chairs, and couches, where seating is "first come first serve." However, some coworking spaces (approximately 47%, according to Deskmag, 2017) also have private offices available for rent. The ratio of open space to private office is a key design choice for coworking spaces, as it can affect the frequency of interaction among community members and determine what type of culture prevails in the space. On average, 40% of a given coworking space consists of open workspaces, 25% private offices, and the remaining space filled by lounge/coffee areas and meeting/event spaces (Deskmag, 2018).

Rent/lease. Coworking spaces charge a monthly rent to tenants. The amount of rent depends on the type of offering, with private offices being more expensive than open coworking. Most leases are month-to-month, allowing tenants the flexibility to cancel at any time. Deskmag estimates that the monthly price is around $195 to work in the space without a dedicated desk, and $387 for a dedicated desk.

Amenities. Coworking spaces generally offer a variety of amenities, which can include office furnishings (desks, tables, chairs, couches, etc.), access to conference rooms, WiFi, printing, exercise equipment, and free food and beverages. WeWork, for example, is known for its free-flowing alcohol in common rooms. Many coworking spaces offer 24/7 access (72%, according to the Deskmag, 2018 data), and some offer child care or are child-friendly (26%). Many coworking spaces offer events, ranging from professional networking opportunities to social interactions (game nights, watching sports, etc.). Many spaces also offer optional trainings

or workshops on topics that are of interest to their tenants, such as how to fundraise, how to acquire customers, how to find health insurance or deal with taxes, etc.

Members. Coworking spaces differ both in terms of size (i.e., number of members) as well as the diversity of their members. In terms of size, the average coworking space has 82 members, with the median being 45 members (Deskmag, 2018). The average size has grown over the years as evidenced by Figure 6, with larger spaces being built and existing spaces adding more space. In terms of the diversity of members, some coworking spaces allow anyone to work at their space as long as they are able to pay the rent, resulting in a mix of startup companies, small businesses, remote workers, freelancers, and independent contractors. Other coworking spaces choose to focus, perhaps on a particular group (e.g., startups or freelancers) or on a particular industry (e.g., media, software, FinTech, etc.). Approximately 81% of coworking spaces include individual members, 58% include companies with less than 10 employees, and approximately 10% include companies with more than 10 employees (Deskmag, 2018).

Sponsors/partners. While approximately 82% of coworking spaces are for-profit businesses, only about 42% of all coworking spaces are actually profitable (Deskmag, 2018). Many coworking spaces do not collect enough rent to cover their expenses, and thus seek out funding from sponsorships by local governments, universities, and corporations. In addition, many coworking spaces collaborate with other organizations to coordinate events and initiatives. For example, many coworking spaces (66%, according to Deskmag, 2018) partner with local, purpose-driven organizations such as associations or meet-up groups. Many also partner with local service companies (45%), educational organizations (41%), other coworking spaces (36%), local government (35%), and real estate firms (23%). These partnerships help increase the value-add of the coworking space by providing more offerings and interactions for members.

Given the substantial variation in sponsors, partners, and other stakeholders, it is perhaps not surprising that coworking spaces can vary in terms of design elements. These stakeholders establish these coworking spaces for a specific purpose, and should choose design elements of the coworking space that best meet that intended purpose. Similarly, founders should consider carefully these design elements before selecting a coworking space themselves.

Differentiating Coworking from Other Entrepreneurial Support Organizations

Although some relevant studies address the implications of accelerators, incubators, and maker spaces (Cohen, Bingham, and Hallen, 2018; Hallen, Cohen, and Bingham, 2018; Browder et al., 2019), coworking spaces are different in fundamental ways (see Table 18). One of the primary distinctions is the types of participants. Accelerators and incubators have formal application processes in which startup companies are selected based on their potential for growth (with accelerators typically having a more stringent application process than incubators). As such, accelerators and incubators tend to admit higher-quality startups that have ambitions to raise venture capital funding and go public. While these types of new ventures have been of great interest to entrepreneurship scholars, they represent only a tiny fraction of the total number of new ventures in a given year (Aldrich and Ruef, 2018). Coworking spaces, on the other hand, have no such selection process – anyone who can pay the rent is able to rent a space. As a result, coworking spaces are generally full of more "every day" entrepreneurs and have a much more diverse set of participants, including startups (of variable quality), small businesses, freelancers, independent workers, and remote workers from larger corporations. This is also different from the participants of maker spaces, who are generally individual inventors, hobbyists, or tinkerers. Thus, while people usually go to maker spaces for a few hours at a time to build a product or

experiment with different designs, people go to coworking spaces for office space in which to work on their full or part-time jobs.

Other major differences include the amount of structure, the payment required, and resources provided. For example, accelerators are limited-duration programs, typically lasting 3-6 months, in which cohorts of entrepreneurs are expected to attend trainings, meet with mentors, complete assignments, and meet certain milestones (Cohen et al., 2019a). Participants are typically required to give the accelerator an equity stake in their business, and in exchange, they receive a considerable amount of resources including seed capital, intensive mentoring/training, access to service providers, and office space in which to work while they are in the program. Incubators are also often limited-duration, though entrepreneurs typically spend more time in them (often 6-12 months). Although incubators do not offer formal programs, they generally have mentors, trainings, service providers, and space available on a fee-for-service basis. Maker spaces are different in that there is no structure; rather, the space offers a wide variety of hardware and software tools which members are free to use. These spaces are often free to a certain population (e.g., university-owned maker spaces are often free for faculty and students), but several for-profit maker spaces exist which charge a membership fee (Browder et al., 2019).

Coworking spaces, however, are distinct. They are not limited-duration, in that tenants can stay for as long as they continue to pay the monthly rent. Also, other than the amenities discussed earlier (e.g., Internet, coffee, office furnishings, etc.), coworking spaces typically provide no hard resources such as seed capital or intensive mentoring. Instead, entrepreneurs rely on coworking spaces for (1) working space, but also (2) the *community*. The community aspect is perhaps what distinguishes coworking spaces the most from these other types of organizations. Although some work suggests that founders in accelerators and incubators benefit from their

relationships with the other founders in their cohort (Cohen et al., 2019b), this is typically a peripheral instead of primary motivation for applying to one of these programs. With coworking spaces, however, a primary motivation for joining is to work among a community of peers. If a founder only needed working space, many would be more inclined to simply work from home or from a coffee shop, library, or other public space. None of these spaces, however, provides the sense of community that exists in a coworking space. Overall, community represents the key aspect of coworking, and I discuss it in much more detail in the section below.

THE IMPLICATIONS OF COWORKING FOR FOUNDERS AND THEIR VENTURES

In this section, I now turn to the implications of coworking for entrepreneurs. Using the qualitative and quantitative data from Coworking Central, I lay a conceptual groundwork for how founders and their ventures might benefit (or not) from working in coworking spaces. As mentioned above, these data suggest that the benefits come not only from the coworking *space* itself, but also from the *community* within the space. In the two sections that follow, I first describe the benefits provided by the space, and I then describe the benefits provided by the community.

Benefits of the Coworking Space

Efficiency: Founders generally pay more per square foot at a coworking space than they would in a traditional office space. However, this is misleading because founders are buying more than space – they are also buying convenience. In a coworking space, a founder spends less time worrying about utilities, internet, security, furnishings, etc., and more time focused on building their company. For example, one founder said, "*I don't have to worry about anything. It's just a monthly rent and everything is taken care of...I don't have to worry about maintenance*

or worrying about when the Wi-Fi goes out..." Given the many other challenges that entrepreneurs face when starting a new venture, coworking helps by taking care of many of the little problems so the founder can focus on other matters. In addition to the convenience factor, coworking spaces also give founders access to conference rooms, shared workspaces, free amenities, and other resources that otherwise they would not able to afford by themselves. As one founder put it, "*It provides really nice access to things like…cool conference rooms, cool furniture, plants, coffee, etc.... Startups don't have a lot of money for these things. It's shared, but it makes it all accessible.*"

Flexibility: Traditional office spaces typically require tenants to sign multi-year leases. Entrepreneurs are hesitant to do this because they do not know how quickly they will grow and need to move, or whether they will even be in business in a few months. As a result, conventional office space is often not an option. Coworking, however, provides a solution to this dilemma by offering month-to-month leases and flexible arrangements. As one founder put it, *"Real estate is so frequently a constraint for entrepreneurs... coworking just about takes that off the table, because the commitment's so minimal..."* Part of this flexibility is the modularity of the space. In other words, founders can start out by renting one or two desks, and then as they grow they can slowly add more desks or private offices. This can work in the opposite direction as well, in that if a company needs to shrink its headcount it can simply take away an office or desk. One founder said, "*It's so modular and flexible…If you need more space, you add a new office. If you need to shrink, you get rid of one of your offices*." Thus, although real estate is frequently a constraint, the modularity and flexibility of coworking spaces helps mitigate these issues.

Legitimacy: The third benefit of the coworking space is that it can give entrepreneurs an extra degree of legitimacy. When founders work from home or out of a garage, one challenge is

that they have no place to host meetings with potential customers or investors. Oftentimes they are forced to take these meetings at a coffee shop or restaurant, but this is seldom ideal since the founder has no control over the environment, and the professional perception of the business is often decreased. Coworking provides a solution, as it allows founders to hold these meetings in a conference room in a professional setting. This can have a significant impact. For example, one founder said "*I don't know where we'd be if we didn't work here... Honestly, it would have really constrained our growth potential because we couldn't have taken our client meetings at a home office or in a garage or at a coffee shop*." In fact, a few of the founders I spoke with paid the monthly coworking fee for the sole purpose of using the conference rooms for client meetings.

Overall, coworking spaces help overcome several issues related to real estate, which is frequently a constraint for entrepreneurs. The benefits include *efficiency* (by saving entrepreneurs time and money), *flexibility* (by allowing new ventures to grow or shrink on an as-needed basis), and *legitimacy* (by providing a professional setting where entrepreneurs can take clients, investors, or hires). These benefits, along with representative quotations from my interviews, are summarized in Table 19.

Benefits of the Coworking Community

Despite the many benefits of the space described above, my data suggest that the primary reason founders choose to work in a coworking space is not for the *space* itself, but rather for the *community* within the space[17]. The benefits that the community provides include (1) connections,

[17] For example, in March 2020, Coworking Central's state issued a "stay-at-home" order asking all citizens to stay at home for an extended period. When this happened, the operator of Coworking Central sent an email to all members saying, "*While [Coworking Central] is certainly about space, it is even more about community and we know now, more than ever, we need to continue building that community even if it takes place online for the next few months*." Even though members were no longer able to use the space, many continued paying the coworking fee to have access to the community of other entrepreneurs.

(2) solutions, (3) energy/motivation, and (4) social support. These benefits are summarized in Table 20, and I provide more detail in the sub-sections below.

Connections: Extant research suggests that entrepreneurs use both strong and weak ties to mobilize resources (Aldrich and Zimmer, 1986). Many of these studies also suggest that entrepreneurs tend to not search beyond their pre-existing networks (i.e., family, friends, former co-workers, etc.), meaning entrepreneurs are often constrained by their personal background (Clough et al., 2019; Ruef et al., 2003). However, when entrepreneurs join a coworking space, they automatically join a community of weak ties. Coworking spaces offer unprecedented opportunities for networking just by being in physical proximity to other startups, and through events and other formal activities offered. These interactions often lead to referrals for new clients, employees, investors, service providers, etc. For example, one founder said "*You build a lot of connections, just people that you talk to when you're going to get coffee, things like that... a lot of those connections come to pay off over time where somebody knows an investor you want to meet with. They introduce you, or they talk to a potential customer about your product...*" Many founders cited the ability to make connections as a key benefit of the coworking community. As one said, "*I honestly feel that we probably would not be anywhere near as successful if it weren't for this place...We've had a lot of clients come from other people here through some sort of network effect.*"

Solutions: Entrepreneurs, especially first-time entrepreneurs, often do not have the experience or knowledge to navigate the complexities of starting a new venture. As such, many entrepreneurs rely on help from other members of the community to solve problems and answer questions. For example, one founder said, "*The community is big for entrepreneurs and I feel that you can reach out to anybody here, if you need to know something, learn something, and*

that's huge when you're a startup." The community listserv was especially useful for this purpose, with founders constantly asking questions (e.g., "*anyone have suggestions on writing a press release*?" or "*what do you use for payroll*?"), and other founders responding with suggestions and solutions. As entrepreneurs developed relationships with other people in the community, they gained a better understanding of who had what knowledge or skillsets, and were able to take advantage accordingly. As one founder said, "*For us to be able to go up a floor to solve a problem or down a floor to ask a question, is invaluable.*" Overall, the coworking community can resolve many of the every-day practical challenges that entrepreneurs face when starting a new venture.

Energy/motivation: Many of the entrepreneurs I interviewed mentioned the "buzz" or the "vibe" of the space as being an intangible yet important reason for working in the space. Being surrounded by other entrepreneurs is often energizing and motivating. For example, one founder said "*You kind of see the same people all the time and see them progress. It pushes you too...We get energized by what's going on and the other community members.*" The passion and intensity with which most entrepreneurs go about their work is usually contagious. One founder shared: "*It's inspiring. It's nice to see so many people also so passionate about what they're doing. That's the common thread. It doesn't matter what it is they're doing, they're just passionate about it. And that feels good.*" These feelings of energy and inspiration are generally a welcome change from working from home, where it is easy to feel isolated and disconnected from the rest of the world. This energy pushes entrepreneurs to work harder and gives them a sense of purpose.

Social support: The entrepreneurial process can take a psychological toll on founders, as founding a new venture is an enormous task that requires countless hours of hard work, stress, isolation, ambiguity, and at times utter hopelessness. However, the friendships developed

between entrepreneurs in a coworking community can help alleviate some of these stresses. For example, one founder said, "*When I've been able to sit down and have conversations with other entrepreneurs…you could say it's a little bit like a therapy session, talking about all the ups and downs.*" Another shared: "*For me, it's really the social support... having other people to vent to if you have a project that's really frustrating or a client that's giving you trouble, or I'm just mad at my cofounder for some reason*." In addition, the community can help validate what the entrepreneur is doing. Many entrepreneurs have family and friends who do not understand why someone would work in a startup rather than having a high-paying and steady corporate job. This can make entrepreneurs doubt themselves. However, working alongside other like-minded entrepreneurs helps them feel validated, reminding them that they are doing something important and impactful. As one founder shared, "*It's been helpful just psychologically to not feel like I'm off on my own doing some crazy thing, but that there are other people going through this... All my family and friends have stable jobs and are on a track. Those people are supportive but they also might think you're a little bit crazy. It's nice to be around the people who get it and they don't think you're crazy.*"

Overall, most of my interviewees describe the community as invaluable. As one interviewee said, "*There are so many advantages, honestly. I'm hesitating because I don't really know where to start. I think if you have an idea or you have a business in and around this area, in my opinion, this is the best place to start*." As discussed above, these advantages include *connections* (to potential customers, hires, investors, etc.), *solutions* (ranging from important issues around product development to more mundane issues like setting up payroll), *energy/motivation* (emanating from the passion and purpose with which the community pursues

their projects), and *social support* (providing friendship and encouragement when times get tough). These benefits are only possible due to the concentration of entrepreneurs in one space.

Intriguingly, my preliminary findings seem to suggest that entrepreneurs value the community *more* than the actual space itself. For example, one founder acknowledged the benefits of the space but shared "*I think the big advantage is… this kind of community*"… similarly, another briefly mentioned the benefits of the space but then said "*The biggest value of [coworking], has been the friends you make along the way, would be the way to frame it. I've just been blown away by how giving the community is.*" A coworking community provides many benefits that have historically not been available to entrepreneurs, and they embraced it wholeheartedly. Founders expressed feelings such as "*The benefits are innumerable. They've helped us immensely. We wouldn't be where we are right now without them," or* "*You can make the most of your business here*." One founder put it more eloquently:

> "*There's this idea that you are the average of the five people you spend the most time with. I think sometimes as a startup, it's almost similar, you're the average of the five startups you surround yourself with the most. And so I think the opportunity to be a part of a growing successful community… is that opportunity to surround yourself with other companies that are going after a lot of the same things. And so I can't imagine doing it another way.*"

Potential Downsides of Coworking

Though coworking offers several benefits, there are also potential downsides. I asked my interviewees what these might be (if any), and they offered several insights. Many of them were location-specific to Coworking Central (e.g., lack of parking options, office décor, the process for scheduling conference rooms, etc.), but interviewees also spoke at length about other concerns that would apply to most if not all coworking spaces. I discuss these below.

Distraction and loss of productivity. Coworking spaces can be crowded and noisy places. People will make calls, talk to each other, move around, and eat food within the working space. As a result, coworking spaces can be full of distractions and lead to a loss of productivity. One interviewee was considering moving out of coworking and into a private office for this reason and said, "*The space isn't ideal for what we do. It can be very loud. It's not an ideal working space because of the traffic and noise*." This is consistent with past literature on open office designs, which suggests that employees in these spaces experience increased noise and distractions and decreased satisfaction and productivity (Oldham and Brass, 1979; Shalley, 1995). In addition to the noise and other distractions occurring within the space, the community itself can also be distracting. As discussed above, many entrepreneurs rely on and benefit from other members of the community for connections, ideas/solutions, energy/motivation, and social support. However, these exchanges are often reciprocal, meaning that others within the community rely on the focal entrepreneur for the same things. As one entrepreneur put it, "*sometimes you need to really, really focus on solving a problem, but then you might have somebody come to you with their own problem they want to talk to you about*." Another shared similar feelings, saying:

> "*There's almost too much social opportunity. People come in your office and just blah-blah-blah. And I need to lock down and do some stuff. There have been days I'd come in and have a 40-minute conversation with someone, you get a couple, three of those in a day and you kinda kick the stuffing out of your productivity*."

Similarly, although entrepreneurs can benefit from the events, trainings, and other amenities within the space, these can also become distracting if the entrepreneur engages in too many of them. As one founder put it, "*You can get distracted pretty easily. There's a lot of folks that I've seen take advantage of every one of the happy hours and events and so forth. Those things are great, but maybe don't do all of them*." Overall, while the space and community

provide benefits, they are also full of distractions that can potentially decrease productivity and venture performance if the founder is not careful.

Failing slow. When creating new ventures, many entrepreneurs follow the mantra "fail fast, fail cheap, and move on" (Saxenian, 1994). Similarly, past literature takes a relatively positive view of failure, suggesting that it is part of exploratory learning and is an integral part of the innovation and entrepreneurship process (Khanna et al., 2016). These studies suggest that failure provides valuable feedback, and can improve the chances of success for future entrepreneurial efforts (Eggers and Song, 2015). For example, IDEO, one of the most innovative and premier design firms in the world, follows the slogan: "fail often in order to succeed sooner." Consistent with these notions, past studies find that high failure rates of firms actually goes hand-in-hand with the economic growth of a society (Birch, 1979; Lee et al., 2007), and that many failed entrepreneurs eventually succeed and become the sources of entirely new industries (Aldrich and Fiol, 1994; Lieberman and Montgomery, 1988).

In coworking spaces, however, it is possible (though further analysis is required) that entrepreneurs may encourage entrepreneurs to stick with their ventures longer than they would otherwise, and thus actually fail *slower*. Several of the entrepreneurs I spoke with indicated that this might be the case. They explained how the other members of the coworking community became their best friends, and how these friends encouraged each other not to give up and to keep persisting. On one hand, this can be beneficial as mentioned above, because it gives entrepreneurs the confidence and social support they need to persist and succeed. At the same time, however, this can actually cause entrepreneurs to drag their feet and take a longer time to abandon a failed venture. They do not want to leave and disappoint all of these friends, especially when their friends are telling them "*don't give up, you can make it if you just keep*

going!" More data and more analysis is required to better understand the effects of coworking on time to failure, but this initial exploratory analysis suggests that in some cases it may prolong the inevitable.

Who Benefits the Most?

Having established the benefits and downsides of coworking, the natural follow-up question is whether some entrepreneurs benefit more than others. In this section, I discuss evidence from my survey data to provide insight into this question. These data provide a rich set of variables that allows me to document associations between individual characteristics and the sense of community they feel. However, these documented associations are simply that; given the lack of exogenous variation, I am unable to make causal claims with these data. A fruitful area for future research will be to further test and explore the causality behind the correlations presented here.

I rely on four different measures of coworking members' experience within the community. The first is *Sense_of_Community*, which is a three-item scale measuring the extent to which the respondent feels a part of the community. Second, I look at *Engagement_in_Community*, a three-item scale measuring the extent to which the respondent is actively engaged in interacting with the community. The third is *Importance_of_Community*, a three-item scale measuring how important a sense of community is to the respondent. The fourth variable, *Investors_from_Community*, measures the more tangible benefits gained from the community. Specifically, it is an ordinal variable ranging from 1 to 5 with higher numbers indicating that a higher percentage of the founder's investors were introduced to them by members of the community. I discuss these and the various independent variables in more detail in Appendix A.

Table 21 presents an OLS regression of who feels the most sense of community in the space. The subsequent sections describe the primary insights.

Teams vs. individuals. I first examine whether *individuals* (i.e., solopreneurs, freelancers, etc.) or startup *teams* benefit more from coworking spaces. The little work that does exist on coworking (Spreitzer et al., 2015a; 2015b; Garrett et al., 2017) suggests that coworking is most beneficial for individuals. The logic is that teams already have some sense of community from their other team members, and thus would not need to rely on the coworking community as much as individuals. Some of the individuals I interviewed expressed this same notion, saying, *"I like the community. Definitely as a sole founder, if I am working alone somewhere, it's better to work around a lot of other companies and kind of feed off their energy.*" In fact, Garrett et al. (2017) studied one coworking space that resisted teams altogether and would only allow individuals to work in their space. Their fear was that sub-groups would form and that the teams would only associate with their fellow team members and not with others in the community, and they wanted to avoid that as much as possible.

However, the results of Table 21 suggest that *teams* are actually more involved in the community and feel more of a sense of community than *individuals*. My interviews suggest some insight into why this may be the case. For example, I interviewed one founding team that consisted of two brothers starting a software company. The first brother was more reserved and had a difficult time meeting others in the community by himself. The second brother, however, was very outgoing and loved meeting new people. The first brother described the second brother as being "*halfway the Mayor… he knows a ton of people.*" Thus, the second brother built many relationships with other people in the coworking space and then introduced these people to his brother. I interviewed another team with a similar dynamic. The team consisted of three

founders, two of whom were not always great at meeting new people. However, they described their third founder as having "*connections out the wazoo… he knows everybody…*" Once again, this founder would meet new people in the space on a regular basis, and then introduce them to his two other founders. As a result, this founder helped his two cofounders become more involved in and committed to the community, whereas if they had been working in the space individually they might not have interacted much at all with others. Thus, teams are likely to benefit more in coworking spaces because team members' strong ties (Granovetter, 1977) with each other help them connect to one another's weak ties.

Experienced vs. inexperienced entrepreneurs. Prior research finds that entrepreneurs with prior startup experience are more successful on average compared to other entrepreneurs (Delmar and Shane, 2006; Eesley and Roberts, 2012; Lafontaine and Shaw, 2016). There are several reasons for this. First, whether or not their ventures are successful, entrepreneurs can still benefit from founding a new venture by gaining valuable knowledge and experience (Shane and Khurana, 2003; Baron and Ensely, 2006). Specifically, entrepreneurs gain experience in creating products, recruiting talent, raising funds, and structuring roles and incentives, much of which can transfer to the new venture. In general, prior startup experience provides the entrepreneurs with a certain type of human capital that is difficult to replicate in other ways (Delmar and Shane, 2006). Second, and in addition to gaining experience, entrepreneurs typically build valuable relationships (with investors, key industry players, etc.) through their prior startup experience that should increase their next venture's chances of success. These relationships can help facilitate resource acquisition and provide legitimacy in the eyes of key stakeholders, and thus reduces the venture's liability of newness (Stinchcombe, 1965).

Given the advantages of prior startup experience, novice entrepreneurs are often at a disadvantage and require more help and guidance, and may need to rely on the coworking community more. Consistent with this notion, the results of Table 21 suggest that entrepreneurs with no prior startup experience report greater involvement in the community and feel a greater sense of community. This is also consistent with the evidence from my interviews, in which many of the first-time founders expressed how essential the community was for them. For example, one founder came from a long career in coding software, but had never before founded his own company. After talking about the challenges associated with launching a new venture, he shared:

> *"I've been really lucky in this community at [Coworking Central]. I've been able to find myself surrounded by people who literally want to help me. They'll throw themselves upon the gears to help you out. So all you have to do is insert yourself through a conversation or find a way to ask and there, you've got the help you need, it's right there."*

Overall, first-time entrepreneurs are more likely to need and want help from the community relative to experienced entrepreneurs who may already have much of the experience and relationships they need.

Minority vs. non-minority entrepreneurs. Past research suggests that racial minorities are underrepresented in entrepreneurship, as they face additional hurdles that non-minority founders do not experience. First, past studies suggest that minority entrepreneurs possess fewer average resources at time of founding relative to non-minorities. For example, Fairlie and Robb (2007) analyze data from the Characteristics of Business Owners survey and find that African American founders are much less likely than white founders to have had a self-employed family member prior to starting their business. They are also less likely to have worked in the family member's business, leading to lower general and specific human capital at time of founding. In

addition to having fewer resources at time of founding, past studies suggest that it is also more difficult for minority entrepreneurs to obtain resources after founding, as many investors hold implicit or explicit biases against racial minorities making it harder to obtain both credit (Freeland and Keister, 2016) and investment (Younkin and Kuppuswamy, 2018).

In light of this prior research, it is unclear whether minorities or non-minorities will benefit more from a coworking community. On one hand, minority entrepreneurs may experience some of this same discrimination within the coworking community, making it harder to form connections with other community members and take advantage of everything the space has to offer. On the other hand, however, it is possible that minority founders will engage more with the community as they may be less likely to have other founders within their informal networks, and thus may need and benefit more from the coworking community.

The results of Table 21 support the latter view, and suggest that minority founders have a much different community experience than non-minorities. Specifically, minorities are more likely to be engaged in the community, to feel a sense of community, to place importance on the community, and to find a greater percentage of their investors from the community. One African-American founder I interviewed discussed the challenges he had faced as a minority entrepreneur, sharing the following:

> *"Having had a difficult time finding affordable financing…I don't come from a background with a ton of resources, and so to be able to experiment under this type of roof… is invaluable. You are able to vet your ideas if you have them. You are able to partner with different companies... You are able to take part in events…There are so many different ways to plug into the ecosystem, all under one roof."*

Overall, minority founders appear to engage more in and benefit more from the coworking community. This is broadly consistent with other prior studies, which suggest that minorities tend to exhibit higher levels of collectivism (orientation toward the well-being of the

larger community), and thus place more of an emphasis on and spend more time within the community (Gaines et al., 1997). This is further reason to study the effects of coworking, and future research should continue to examine whether coworking communities can help address the troubling low rate of business ownership among disadvantaged groups (Fairlie and Robb, 2007).

Entrepreneurs with market vs. non-market logics. Past research broadly categorizes entrepreneurs as having either a market logic or nonmarket logic (Clough et al., 2019). A market logic refers to action guided by economic rationality and self-interest. Entrepreneurs with a market logic generally view the purpose of their startups through the lens of profit maximization, and focus more on financial metrics compared to other founders (Almondoz, 2014). Individuals with a nonmarket logic, in contrast, engage in action that is motivated by and oriented toward a higher goal than self-interest, such as family, religion, or community. (Friedland and Alford, 1991). Entrepreneurs with a nonmarket logic are not likely to view their startups exclusively through a profit-maximization lens, and more likely to view it through the lens of their ongoing social relations and cultural context (Almondoz, 2014; Clough et al., 2019). Given these different priorities and motivations, entrepreneurs with a nonmarket logic will likely be more involved with and benefit more from the coworking community relative to those with a market logic.

The results of Table 21 support this assumption. Specifically, entrepreneurs with a market logic are less likely to be engaged in the community, to feel a sense of community, to place importance on community, and to find more of their investors through the community. My interviews further confirmed this. For example, one founder who operated under more of a market logic shared the following:

> *"I work here because there's nowhere else to work… We can't get and we don't want to get a 5-year lease somewhere else at this stage. That's a lot of money. Coworking Central has favorable and flexible lease terms, and it's just really convenient. It's just a*

good office. I haven't really taken advantage of the fringe benefits. I'm not really social with the other companies here… I don't really get involved in a lot of the other stuff…if another coworking space opens up across the street and has better lease terms and parking, then I will probably move over there. That's the reality of it."

This founder placed little importance on community, and was primarily in the coworking space for the space itself. This is in contrast to another founder who operated under more of a nonmarket logic and shared:

"I have built a community here… and this felt good to be here…it's where I want to be. We thought about moving the headquarters to [another city], because there's just so much more money there, but we decided for now that…this community is home… We could have an office at this point, but I don't want one, because I love getting to sit with people and not feel like it's just us. [Members of the community] have spent hours with me… their own time, that wasn't during work hours… introduce me to anybody that I was asking to be introduced to… just that community, is huge."

Overall, while founders with a market logic may benefit from the efficiency and flexibility of the coworking *space*, they will be less likely to become involved and benefit from the coworking *community*. Founders with a nonmarket logic, in contrast, are likely to benefit from both.

Founders vs. employees. As discussed previously, coworking spaces have a diverse group of people. Some of these individuals are founders creating their own ventures, whereas others are employees who are either working for those founders or working remotely for some other organization. These two types of people – founders vs. employees – are different in many ways (Roach and Sauermann, 2015). For employees, the job is often just that; a job. Founders, however, are often personally, financially, and emotionally invested in their ventures. Because of this, founding a new venture can be an emotional roller coaster, often taking a psychological toll on founders as discussed above (Wasserman, 2012). As such, it is likely that founders are more likely to seek out and rely on the community more than employees.

This is consistent with the evidence of Table 21, which suggests that founders are more likely to be engaged in the community, feel a sense of community, and place more importance on the community relative to employees. My interview evidence suggests that by simply bringing together a group of founders experiencing many of the same things, coworking spaces can offer a welcome relief. For example, one founder who had employees shared the following:

> *"As a CEO founder… you're on an island. Being in a place like Coworking Central, you're not on an island anymore. Well, you're on an island, with several other people around you. You can wave at each other, bump into each other, kind of be able to share that energy. That optimism. And then actually literal ideas, tactics. So one of the most valuable things for me is having some kind of cadence of meetings with other CEO founders that are approximately the same stage as my company, or maybe a step ahead. It's just the most valuable interactions that I have. I have something where I'm getting groups of founders on a regular occasion. I have no specific ask or agenda when I show up there, but it just helps."*

By simply listening, supporting, and sharing the emotional highs and lows with the founder, other founders in the coworking community can often provide much of the emotional and psychological support that founders crave during the founding process. Employees, who do not face the same challenges and pressures as founders, are likely to want and need the overall coworking community less.

IMPLICATIONS FOR FUTURE RESEARCH

Coworking spaces represent a novel type of workspace for entrepreneurs. Given the rapid rise of the phenomenon, the implications of coworking are largely unstudied. This paper offers some exploratory insights into what coworking is, how it works, and what implications it might have for entrepreneurship. One of the most fundamental aspects of coworking spaces, which sets it apart from other entrepreneurship support organizations (e.g., accelerators, incubators, maker spaces, etc.), is the community aspect. The community helps founders solve problems, give feedback and new ideas, or just simply provide friends and social support when times get tough.

Overall, the data suggest that coworking spaces are providing unprecedented ways for entrepreneurs to form communities with each other and thus interact with, learn from, and mimic their peers.

I close this paper by proposing a research agenda to further our understanding of the implications of coworking for both research and practice. In addition to further research on coworking itself, coworking spaces offer researchers a host of opportunities to advance many theories in management, entrepreneurship, and organizations. I highlight several of these theories below, and discuss how coworking might provide a useful context in which to gather new insights.

Social capital: Social capital theory is an important analytical lens for understanding strategic actions and outcomes in entrepreneurial firms (Aldrich and Kim, 2007; Davidsson and Honig, 2003; Shane and Stuart, 2002). Scholars argue that founders' networks can influence the identification of opportunities, facilitate innovation, confer status, and assist in the mobilization of resources. Past literature typically conceptualizes entrepreneurs as actors situated in social structures comprised of strong ties (e.g., family and friends), weak ties (e.g., casual acquaintances), and unfamiliar persons and strangers (Aldrich and Zimmer, 1986; Granovetter, 1977). Although prior literature typically assumes that the search for resources is restricted to the close social ties of the entrepreneur (Clough et al., 2019), recent research portrays entrepreneurs as more proactive actors who attempt to break out of their social structure constraints and pursue new connections through networking (Vissa, 2012; Stuart and Sorenson, 2007). Coworking spaces provide a unique opportunity in which to do this. While prior research typically examines how entrepreneurs build ties with investors, partners, and other resource providers, there is little research on ties among entrepreneurs themselves. It is possible that coworking spaces can act as

a new source of social capital, in which a community of entrepreneurs interacts with and engages in helping each other succeed by providing referrals and introductions to key stakeholders (customers, investors, employees, etc.). Much more work is needed to understand how this type of social capital may interact with or substitute for other types of social capital in relation to new venture performance.

Organizational design/boundaries. Theories of organizational design and boundaries are a central focus of research in strategy and organizations research. Past research often defines organizational boundaries as the demarcation between the organization and its environment (Santos and Eisenhardt, 2005), and represent the social structure that constitutes an organization and influence how the organization processes information. Recently, however, more studies examine various socioeconomic changes that blur organization boundaries, including open innovation, crowdsourcing, and online communities (O'Mahony and Ferraro, 2007; O'Mahony and Beckhy, 2008) as well as the rise of the sharing economy (Ashford et al., 2007). Coworking is a similar phenomenon, in which organizational boundaries are blurred. Entrepreneurs and other nontraditional workers often identify not only as members of their own organizations, but also as members of the coworking space and community in which they are nested (Garrett et al., 2017). Even though they work separately on their individual ventures or projects, members of the coworking community develop a collective identity that ties them together. This may be especially true for "all-remote" organizations, a recent phenomenon in which an organization has no central office or headquarters, but rather allows its employees to work in coworking spaces wherever they reside throughout the globe (Rhymer, 2018). Overall, coworking spaces offer an interesting and potentially fruitful context to study new questions around organizational design and boundaries.

Spatial proximity and its impact on innovation, knowledge sharing, and spillovers. Past research suggests that location is a key parameter that firms can use to help increase their exposure to potential knowledge spillovers (Alcacer and Chung, 2007; Audretsch and Feldman, 1996; Jaffe et al., 1993). Given that knowledge is inherently tacit and localized, the transfer of knowledge requires frequent interaction, something that is facilitated by proximity of location. Because of this, the topic of location strategies has been a focus of research in organizations. In entrepreneurial organizations specifically, past studies suggest that new ventures survive and thrive at higher rates in certain entrepreneurial clusters. These clusters have greater access to capital and technical talent, closer proximity to research universities and industry partners, and a greater number of specialized firms that focus on start-up needs (Feld, 2012). The knowledge and capabilities that build up in these clusters can help new ventures access cutting-edge technologies and nonpublic market information they need to succeed (Spigel and Harrison, 2017). While this literature takes a more macro view and focuses on overall founding and survival rates by region, coworking spaces offer an interesting context in which to study more localized knowledge sharing and spillovers. Ventures in coworking spaces are physically located next to other ventures with whom they either collaborate or compete. More research is required to understand whether and how this co-location affects innovation, knowledge sharing, and knowledge spillovers among fellow entrepreneurial colleagues.

In addition to providing new avenues of research for the theories above, coworking spaces can also act as a useful context in which to collect data for other entrepreneurship studies. The field of entrepreneurship research is disproportionately focused on “unicorns” and other high-growth, VC-backed startups (Aldrich and Ruef, 2018). Relatively fewer studies examine startups at the youngest stages of development. This is partially because data on early-stage

entrepreneurs is difficult to collect, as companies form and dissolve all the time before entering any database, thus making them invisible to researchers. Coworking spaces, however, offer an excellent location in which to find and collect data on these early-stage entrepreneurs. These spaces are typically full of more "every day" entrepreneurs and startups of variable quality, potentially offering a much-needed window into the startup process. Thus, future studies could benefit from going to coworking spaces for their sample selection, even if their research question does not focus on coworking itself.

CONCLUSION

Coworking spaces represent a novel type of workspace for entrepreneurs. Given its rapid rise, the implications of coworking are largely unstudied. This paper takes an exploratory empirical approach and sheds light into what coworking is, how it works, and what implications it might have for entrepreneurs and entrepreneurship research. By so doing, I provide an initial foundation for studying the coworking movement, the conditions under which it may improve entrepreneurial outcomes, and the various research streams it can enrich. Overall, the data suggest that coworking spaces are providing unprecedented ways for entrepreneurs to form communities with each other and thus interact with, learn from, and mimic their peers.

CHAPTER 5: CONCLUSION

Without founders, organizations would not exist. Founders' early choices leave an imprint on the procedures, policies, and culture of the organizations throughout the duration of its lifetime. Thus, as the original architects of their organizations, founders have a disproportionate influence on the structure and strategy of organizations (Nelson, 2003), and as such they have been an important focus of research in strategy, entrepreneurship, and organization theory.

Less studied, however, are other actors who work closely with the founder and play supporting roles throughout the entrepreneurial process. Yet, my data and analysis suggest that there is often a constellation of people surrounding the founder and co-creating the venture along with them. These hidden figures, which are rarely observed in entrepreneurial data, seldom receive the same recognition, credit, or glory as founders for creating the organization, despite playing an outsize role in venture success. Yet, they may very account for much of the unexplained differences between successful and unsuccessful ventures.

The three essays included in this dissertation address several of these supporting actors. The first essay examines the important (yet understudied) differences between solo-founded ventures and co-founded ventures. I find that although solo founders face many challenges by not having cofounders, they can overcome these challenges through "co-creators" such as alliance partners, employees, benefactors, and an emotional support network. The implications are that although cofounders are beneficial, they are not necessary, and sometimes not even

preferred. The second essay examines the prevalence and implications of a "second-in-command" among founder-led firms. I find that founder CEOs are much more likely to have a second-in-command, and benefit much more from a second-in-command relative to other, professional CEOs. Finally, the third essay explores the increasingly popular phenomenon of coworking spaces, in which *communities* of founders interact with, learn from, and help one another. The initial framework presented in this study offers a foundation upon which future studies in entrepreneurship, strategy, and organization theory can examine the coworking movement.

Though these essays shed light on several actors supporting founders, many others remain underexplored and offer opportunities for future research. For example, past research suggests that many entrepreneurs rely on a network of individual mentors or advisors (Ozgen & Baron, 2007; Saxton et al., 2016; Burton et al., 2009), but little is still known about how and when they impact ideation, new venture creation, and performance outcomes. Similarly, other entrepreneurial support organizations are becoming more common such as accelerators (Cohen et al., 2019b; Hallen et al., 2020), pitch competitions (Kanze et al., 2018), and foundations awarding grants (Spigel, 2017), and there are many unanswered questions around how these organizations impact venture processes and outcomes. In particular, one concept emerging from this dissertation – the concept of benefactors – requires additional examination. Though Essay 1 provides some examples of benefactors and the types of resources they provide, there are likely many other potential types of benefactors in practice. For example, benefactors can also come in the form of friends, family members, acquaintances, or anyone else who freely gives of their time, expertise, and resources to entrepreneurs. Future work should more fully explore this phenomenon and its impact on venture outcomes. More broadly, future work should examine

other important questions such as why do some founders seek the help of others, while others do not? What type of support is best for different types of founders? How does the support differ depending on the relationship between founder and supporter (e.g., family member, friend, acquaintance, or stranger)?

In addition, there is still much to be done to understand the impact of coworking spaces on founders and entrepreneurial ecosystems at large. Many industry leaders expect that coworking will continue to grow exponentially in popularity and importance for new ventures (GCUC, 2017). Even at their current level, the implications of coworking should be of interest to many theories in management, entrepreneurship, and organizations. For example, social capital theory has long identified the importance of network effects in entrepreneurship (Davidsson and Honig, 2003; Shane and Stuart, 2002). Coworking spaces provide a unique source of social capital, in which a community of entrepreneurs is engaged in helping each other succeed by providing referrals and introductions to key stakeholders (customers, investors, employees, etc.). More work is required to understand how this type of social capital may interact with or substitute for other types of social capital in relation to new venture performance. In addition, past research in organizational design has addressed the importance of geographic and spatial proximity to innovation, knowledge spillovers, and collaboration (Audretsch and Feldman, 1996; Jaffe et al., 1993). Coworking spaces offer an interesting context to study and extend these theories, as new ventures in these spaces are often physically located next to other ventures with whom they either collaborate or compete. In addition, the organizational and physical boundaries of new ventures diverge in coworking spaces, because some teams from the same organization are split into different physical locations, whereas in others there are teams from several organizations in the same co-working space. This could allow future scholars to tease apart the

effects of organizational identity and spatial proximity on outcomes such as innovation and performance, or worker retention and motivation.

CHARTS, TABLES, AND FIGURES

Table 1: Factors that Trigger Destructive Conflict in Founding Teams

Factor	Explanation	Index score	Sources	Representative quotations from interviews
Different levels of commitment	Conflict arises when one co-founder is more committed to the venture than the other. The more committed co-founder usually becomes frustrated that the other co-founders are not pulling their weight.	+1 if one founder was full-time and another was part-time	Wasserman (2012)	"As the business was growing, [my cofounders] started to do less and less. Less involvement in the business...there were some failures to meet those expectations... And at that point, that was when things got ugly."
No clear leader	Conflict can arise when there is no clear leader to make decisions. When founders split decision rights equally, it often leads to gridlock and resentment as founders debate every decision that must be made.	+1 if the founders split decision rights equally	Hellman & Wasserman (2016)	"We want to operate collaboratively and have the four of us on equal terms and equal decision making... But it's hard to run a business that way. It sounds great in theory, but at some point you need someone to make an executive decision and move on… Without having that defined person… it's been hard to actually get decisions made and keep moving forward… That's been our biggest point of conflict."
No previous shared work experience	When co-founders have prior shared working experience, they are more likely to know how each other works, thus reducing chances for conflict.	+1 if none of the founders previously worked together +0.5 if some founders worked together previously, but not all	Shah et al., 2019; Zheng (2012)	"Neither [my first cofounder] nor I had worked directly with [my second cofounder] before… and it just didn't work. It was clash of personalities and viewpoints...It was just constant battles."
First co-founding relationship	Although prior shared work experience can be helpful, co-founding a startup together is still very different from being co-workers. Founders must have difficult conversations about roles, equity, personal finances, and other issues unique to co-founding relationships.	+1 if the founders had not previously founded a company together	Emerged from interview data	"We had to have the difficult conversation of who would actually be CEO… we had to start talking about equity splits, and that was the first time that we were on different sides of the table rather than allies. We had to compete for something or split something… those were definitely awkward."
Idea before team	Conflict is less likely to occur when the team forms the idea together, as opposed to one individual forming the idea and then assembling the team. When a team chooses and nurtures an idea together, the shared cohesion and excitement helps the team stick together even during difficult times.	+1 if the team did not develop the idea together	Guericke (2017)	"So we basically decided [on the idea] together…I don't think we've ever had major tensions. Or even strategic disagreements about the direction of the business. I think we're generally very much on the same page."
Long distance relationship	Conflict is harder to resolve when cofounders are not located in the same geographic area. Communication is much easier when cofounders are co-located and can resolve disagreements face-to-face.	+1 if the founders did not work in the same physical location	Emerged from interview data	"We just completely disagreed … we were having a lot of video conferences… and we were just not getting through to one another. And it took us a really long time to realize we need to be in the same room to work through this problem, and so we drove midway point… and just locked ourselves in a team room and really hashed it out…but it took us a while to realize we need to just actually be in the room. Video's not gonna cut it for a problem this big."
Faultlines	The teams literature finds many predictors of team conflict, with one of the most important being demographic faultlines. When team members differ across a range of characteristics (e.g., age, gender, race), conflict is more likely to occur	+0.33 if the founders were not all the same gender +0.33 if the founders were not all the same race +0.33 if the age difference was more than 10 years	Lau & Murnighan (1998)	"I'm not as close with [my other co-founder]. He's German, so he doesn't get our humor. ..We have to lay out, like, very detailed instructions, even the slightest thing that doesn't get communicated properly can turn out like <expletive>"

Note: Table 1 summarizes the seven factors used to create the "conflict index," which is discussed in more detail in the methods section. To develop this list, I first reviewed prior literature to assess which factors were deemed to be associated with *relationship* conflict (i.e., destructive conflict) within founding teams. I then reviewed my interview evidence to determine other factors associated with relationship conflict among the co-founded ventures in the sample.

Table 2: Truth Table

Co-Founders	Alliance partner	Employees	Benefactors	Emotional Support Network	Serial founder	Product Expertise	Conflict	High performance	Cases	Consistency
0	0	0	1	1	0	1	0	1	7	0.900
1	0	0	0	0	0	1	0	1	6	0.898
1	0	0	0	1	0	1	0	1	4	0.909
0	1	0	0	1	0	0	0	1	2	0.879
0	1	0	0	1	0	1	0	1	2	0.849
1	0	1	0	1	0	1	0	1	1	1.000
0	1	1	1	1	0	1	0	1	1	1.000
1	0	0	0	0	1	1	0	1	1	1.000
0	0	1	0	0	1	1	0	1	1	1.000
0	0	1	0	1	1	1	0	1	1	1.000
1	0	1	0	1	1	1	0	1	1	1.000
0	1	1	0	1	1	1	0	1	1	1.000
0	0	0	1	1	1	1	0	1	1	1.000
0	0	0	0	0	0	0	0	0	7	0.124
0	0	0	0	0	0	1	0	0	6	0.305
1	0	0	0	0	0	1	1	0	5	0.462
1	0	0	0	1	0	1	1	0	4	0.507
0	0	0	0	1	0	1	0	0	3	0.412
1	0	0	1	0	0	0	1	0	2	0.500
1	0	0	0	0	0	0	1	0	2	0.398
0	0	0	0	1	0	0	0	0	2	0.153
1	0	0	0	1	0	0	0	0	1	0.789
0	0	0	1	0	0	1	0	0	1	0.788
1	1	0	0	0	0	1	1	0	1	0.746
1	0	0	1	0	0	1	1	0	1	0.549
0	0	1	0	0	0	0	0	0	1	0.495
1	0	0	0	1	0	0	1	0	1	0.490
0	0	0	1	1	0	0	0	0	1	0.431
0	0	1	0	1	0	0	0	0	1	0.333
1	0	0	1	1	0	0	1	0	1	0.262
1	0	0	1	1	0	1	1	0	1	0.000

Note: I removed all configurations that were not associated with any of the firms in the sample.

Table 3: Configurations Leading to High and Low Performance

Panel A: Simplified Depiction of Results

	Pathways Leading to High Performance			
Condition	**Path 1**	**Path 2**	**Path 3**	**Path 4**
Co-Founders	✓			
Alliance partner		✓		
Employees			✓	
Benefactor				✓
Emotional support network		✓		✓
Serial founder			✓	
Product expertise	✓		✓	✓
Conflict triggers	X	X	X	X

Note: For ease of interpretation, Panel A of Table 3 provides a simplified depiction of my results. Green checks indicate the condition must be present, and red X's indicate the condition must be absent. Blank spaces indicate the condition is not relevant to that particular configuration (i.e., it may be either present or absent). For a more detailed overview of my results, refer to Panel B of Table 3.

Panel B: Detailed Version of Results

	Configurations leading to high performance				Configurations leading to not high performance				
Explanatory conditions	1	2	3	4	1	2	3	4	5
Co-Founders	●							⊗	⊗
Alliance partner		●			⊗	⊗	⊗	⊗	⊗
Employees			●		⊗	⊗	⊗		⊗
Benefactor				●	⊗			⊗	⊗
Emotional support network		●		●		●			
Serial founder			•		⊗	⊗	⊗	⊗	⊗
Product expertise	●		●	●			⊗	⊗	
Conflict triggers	⊗	⊗	⊗	⊗	●	●	●		
Consistency	0.825	0.906	1.000	0.898	0.862	0.929	0.883	0.913	0.878
Raw coverage	0.302	0.124	0.124	0.183	0.275	0.219	0.110	0.275	0.425
Unique coverage	0.271	0.081	0.074	0.162	0.071	0.022	0.013	0.039	0.190
	Solution consistency: 0.877 Solution coverage: 0.660				Solution consistency: 0.862 Solution coverage: 0.789				

Note: Black circles indicate the presence of a condition, and open circles indicate its absence. Blank spaces without a circle indicate that the condition is not relevant to that particular configuration (i.e., it may be either present or absent). Following Ragin & Fiss (2008), we display the intermediate solutions with larger circles representing "core" conditions, and smaller circles indicating "periphery" or contributing conditions. Table 3 reports measures of consistency and coverage for each configuration. Consistency refers to the degree to which cases in that configuration exhibit the outcome. Raw coverage shows the total percentage of cases that are members of that particular configuration. Given that some cases can be members of multiple configurations, we also show unique coverage which represents the percentage of cases that are exclusively a member of that particular configuration. The overall solution that explains high performance has a consistency of 0.877, and the solution that explains low performance has an overall consistency of 0.862. These are above the 0.80 consistency threshold that past research deems acceptable (Fiss, 2011). Coverage, which measures the extent to which the solution explains all the cases exhibiting the outcome (similar to r-squared in statistical analysis), is 0.660 for the high-performance solution and 0.789 for the low-performance solution.

Table 4: Analyasis of Necessary Conditions

Condition or configuration	Consistency	z-score
Co-Founders	0.47	-5.90
Alliance partners	0.17	-11.09
Employees	0.20	-10.57
Benefactors	0.29	-9.01
Support network	0.66	-1.57
Serial founder	0.22	-10.23
Product expertise	0.81	0.34
~Conflict triggers	0.89	1.38*
Co-Founder OR Alliances OR Employees OR Benefactor	0.93	2.07**
Co-Founder OR Emotional Support Network OR Serial Founder	0.90	1.55*

Note: The symbol ~ indicates the absence of the condition (e.g., "~conflict" refers to the absence of conflict). The z-scores were calculated using the formula found in Ragin (2000): z = ((c – b) – 1 / 2n) / sqrt((b*(1-b))/n), where c is the observed consistency, b is the benchmark consistency (0.8 in this case), and n is the number of cases that have nonzero membership in the outcome. This z-score assesses the probability that the observed consistency is greater than the benchmark consistency. Conditions or configurations that are significantly above the 0.8 benchmark (frequently used in past studies – Ragin, 2000) are considered "almost always necessary" for performance. Using a standard normal distribution table and one-tailed test, * and ** indicate significance at the 0.1 level (i.e., z > 1.28) and 0.05 level (i.e., z > 1.65), respectively.

Table 5: Comparing Co-Founders and Co-Creators

		Co-Creators			
Category	**Co-founders**	**Employees**	**Alliances**	**Benefactors**	**Emotional support**
Compensation	Large portions of equity and voting rights, and sometimes small salary	Salary, benefits, and sometimes a small portion of equity	Royalties, portion of revenue, or other agreed-upon sum	None	None
Relationship to founder	"*Spousal*" (a very close relationship that resembles more of a marriage than anything else)	"*Professional*" (a more hierarchal relationship where the employee is subordinate to the founder)	"*Contractual*" (terms of relationship are written down and formalized in a contract)	"*Personal*" (typically individuals who have a personal interest in helping the founder succeed)	"*Personal*" (typically a spouse, peer founders, or mentors/advisors)
Degree of control	High	Low	Low	Very low	Very low
Resources provided	Human, social, financial capital	Primarily human capital, though sometimes social capital	Can contribute human, social, or financial capital, depending on type of alliance	Can contribute human, social, or financial capital, depending on type of benefactor	None
Coordination and monitoring costs	*Medium to high* (depends on prior shared experience, with less prior shared experience meaning more coordination)	*High* (usually require more monitoring than co-founders, as they are not as intrinsically committed)	*High* (coordinating across organizational boundaries can add additional costs and complexities)	*Low* (benefactors tend to give the resource freely, with little or no coordination required)	*Low* (no need for coordination or monitoring)
Emotional/ psychological support	*High* (co-founders have shared experiences and challenges, allowing them to understand each other better than anyone else)	*Medium to low* (depends on relationship, but often inhibited by the boundaries between employers and employees)	*Low* (nonexistent, as the relationship is contractual or transactional in nature)	*Low* (none – they provide resources rather than emotional/ psychological support)	*Medium to high* (usually not a perfect substitute for co-founders, but often sufficient enough)
Likelihood and severity of conflict	*High* (the long-term and high-stakes nature of co-founding relationships makes them prone to conflict)	*Medium to low* (conflict can arise, but when it does, it is much easier to remove the individual)	*Medium to low* (conflict can arise, but when it does, it is much easier to end the relationship)	*Low* (conflict can arise, but when it does, the benefactor has no claim on the firm)	*Low* (conflict can arise, but when it does, the individuals have no claim on the firm)

Note: Table 5 compares co-founders with various co-creators (employees, alliance partners, benefactors, emotional support network) along several important characteristics

Table 6: Motivations for Choosing to be a Solo Founder or Co-Founder

Reason		Explanation	Representative quotations from interviews
Why do solo founders choose co-creators over co-founders?			
	Avoid co-founder conflict	The more founders there are, the more opportunities there are for conflict to arise. Many founders go solo to avoid this conflict.	• "I've heard such horror stories about having bad co-founders. I am really leery about [it]...It's a long process to find someone and ...I hear horror stories. And I don't want to get caught with something like that." • "I've heard the horror stories. It's just like having a coworker you don't like and y'all have to work on a project...It's that scenario that scares me" • "If [I had a co-founder who] had something that they didn't want to focus on that I felt really passionate that I needed to, that would've really thrown me off. That was actually one of my fears, which is why I don't have a co-founder. I just didn't want to have to consider somebody else's emotion too much in my decision-making."
	Maintain control/ equity	Some entrepreneurs are very interested in the non-pecuniary benefits of control. Solo founders enjoy a great deal of control.	• "I would say that my personality... I tend to just want to do things my own way. I really just want to have my own business [and be] a solo founder making the decisions... " • "In terms of control of the company, I prefer to maintain that because I do have a vision of where it wants to grow and take it...In terms of the technology stack control, that's something I intend to maintain control of no matter what." • "As a sole founder you have a lot of leeway to take things in the direction that you see the best fit."
	Grow or develop personally	Some entrepreneurs like being solo founders not because it helps their business, but because it helps them grow and develop personally. They enjoy learning new things and wearing all hats.	• "[Being a solo founder] has been incredibly revelatory for me in terms of growth and development as a person, as a father, as a husband, as a partner. I realized now a lot more things about myself than I ever did, and that's been invaluable and truly that's priceless…I don't think you get that just kinda going through it with a group because the blame instinct is just that, it's an instinct, you won't take as critical a look at yourself." • "It's forcing me to work in areas I have zero exposure to, which I love to learn, it's exciting to kind of put on some of those other hats and learn about teachability and a marketing plan and how to create viral content... It's just something I haven't explored before, it's really cool." • "I think that I have a lot of different skills besides the software development and I want to be using them, and I think having my own business allows me to do that."
Why would founders still choose co-founders, even if they have access to co-creators?			
	Prefer to work closely with others	Some entrepreneurs prefer to have someone "in the trenches" with them day-to-day.	• "I think starting a business without a partner…is insane…I would just go nuts without having someone to bounce everything off of, and to decide critical decisions with." • "I also wanted to have a fully operating co-founder from the beginning who was in the trenches with me 24/7, working around the clock without getting paid. I would much rather start a company that way."
	Cope with loneliness	Some founders want co-founders simply for the emotional/ psychological benefits	• "The first company I tried to start was solo. That was hard. It was really hard. The low points are extra low, because you're the only one who has to really deal with it. Going at it alone is really, really hard." • "The loneliness is definitely a real thing…"

Note: Table 6 provides an overview of the primary motivations (as identified in my interviews) for going solo or finding co-founders. The right hand column provides representative quotations from my interviews performed with founders.

Table 7: The Implications of a Second-in-Command

What past literature says			Why different for founders	
Implications of a second-in-command	**Beneficial or detrimental for firm performance?**	**Why?**	**More/less beneficial or detrimental for founders?**	**Why?**
1. Reduces CEO overload	Beneficial	Running a contemporary firm is too much for one person to handle. By delegating internal operational matters to the second-in-command, the CEO is prevented from being spread too thin and doing all aspects of the job poorly.	More beneficial	**Founder capabilities**: Founders possess the entrepreneurial capabilities needed to discover and exploit opportunities, but lack the operational and managerial capabilities needed to run a large, complex firm. Thus, delegating internal responsibilities is especially crucial in founder-led firms.
2. Reduces unity of command	Detrimental	A second-in-command violates the unity of command principle, as confusions arise about who is actually in charge. This complicates and restricts the flow of information and can lead to power struggles between the two executives.	Less detrimental	**Founder power/authority**: Founders hold a more solid grip on control of their firms leading to less confusion around "who's in charge," as those working in and with the firm will be more likely to recognize and accept their authority. Thus, founders are more likely to avoid destructive infighting and power plays.

Table 8: Descriptive Statistics

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Mean	S.D.	Q1	Med	Q3
Second_In_Command	1	1.00																0.41	0.49	0.00	0.00	1.00
BHAR	2	-0.04	1.00															-0.04	2.14	-0.80	-0.52	0.17
Founder	3	0.13	-0.02	1.00														0.41	0.49	0.00	0.00	1.00
CEO_No_Ops_Background	4	0.08	-0.01	0.23	1.00													0.59	0.49	0.00	1.00	1.00
CEO_Power	5	0.14	0.00	0.29	0.19	1.00												0.98	0.91	0.00	1.00	2.00
CEO_New	6	-0.01	-0.01	-0.32	-0.11	-0.18	1.00											0.53	0.50	0.00	1.00	1.00
Startup	7	-0.07	-0.02	0.19	0.12	0.00	0.04	1.00										0.56	0.50	0.00	1.00	1.00
MVE	8	0.08	-0.02	-0.12	-0.09	-0.09	0.17	-0.39	1.00									5.82	1.05	5.13	5.76	6.43
ROA	9	0.04	0.01	-0.05	-0.07	0.05	-0.06	-0.44	0.19	1.00								-0.24	0.50	-0.38	-0.05	0.04
AbsROA	10	-0.04	0.00	0.07	0.07	-0.03	0.01	0.40	-0.22	-0.95	1.00							0.31	0.45	0.04	0.14	0.41
BTM	11	0.05	0.01	-0.05	-0.01	0.11	0.04	-0.21	-0.06	0.28	-0.28	1.00						0.16	0.24	0.04	0.13	0.27
R&D_Intensity	12	-0.13	0.04	0.04	0.04	-0.12	-0.09	0.38	-0.18	-0.66	0.67	-0.33	1.00					0.16	0.25	0.00	0.05	0.23
Leverage	13	0.05	0.04	-0.23	-0.09	-0.02	-0.02	-0.58	0.22	0.20	-0.21	-0.03	-0.25	1.00				0.37	0.27	0.14	0.31	0.54
VC	14	-0.10	0.00	0.16	0.03	-0.11	-0.04	0.43	-0.07	-0.27	0.23	-0.37	0.37	-0.45	1.00			0.54	0.50	0.00	1.00	1.00
Dual_Class_Shares	15	0.12	-0.02	-0.02	0.01	0.06	0.03	-0.19	0.27	0.10	-0.10	0.12	-0.11	0.12	-0.16	1.00		0.08	0.27	0.00	0.00	0.00
Board_Size	16	-0.02	-0.03	-0.21	-0.10	-0.21	0.07	-0.11	0.26	-0.08	0.02	-0.10	0.08	0.12	0.11	0.02	1.00	5.26	2.05	4.00	5.00	6.00

Note: N = 2,098. Table 8 provides Pearson correlation coefficients for each variable, with each variable being measured at the time of the firm's IPO. For variable definitions, please refer to the Methods section of my paper.

Table 9: Descriptive Statistics Partitioned by Firms with and without Founder CEOs

	Full Sample										Entropy Balancing Matched Sample					
	Founder CEO				Non-Founder CEO				Diff in Means		Founder CEO			Non-Founder CEO		
Variable	n	Mean	S.D.	Skew	n	Mean	S.D.	Skew	Value	P-value	Mean	S.D.	Skew	Mean	S.D.	Skew
CEO_No_Ops_Background	856	0.72	0.45	-1.00	1,242	0.50	0.50	0.01	0.23	0.000	0.72	0.45	-1.00	0.72	0.45	-1.00
CEO_Power	856	1.38	0.99	0.27	1,242	0.84	0.89	0.78	0.53	0.000	1.38	0.99	0.27	1.38	0.98	0.26
CEO_New	856	0.34	0.47	0.69	1,242	0.66	0.47	-0.68	-0.32	0.000	0.34	0.47	0.69	0.34	0.47	0.69
Startup	856	0.67	0.47	-0.74	1,242	0.48	0.50	0.06	0.19	0.000	0.67	0.47	-0.74	0.67	0.47	-0.74
MVE	856	5.67	0.99	0.34	1,242	5.92	1.07	0.32	-0.26	0.000	5.67	0.99	0.34	5.67	1.04	0.44
ROA	856	-0.27	0.51	-2.20	1,242	-0.22	0.48	-2.67	-0.05	0.021	-0.27	0.51	-2.20	-0.27	0.52	-2.29
AbsROA	856	0.35	0.46	2.74	1,242	0.29	0.44	3.10	0.06	0.002	0.35	0.46	2.74	0.35	0.47	2.90
BTM	856	0.15	0.20	0.38	1,242	0.17	0.27	0.45	-0.02	0.021	0.15	0.20	0.38	0.15	0.22	0.12
R&D_Intensity	856	0.17	0.25	2.39	1,242	0.15	0.25	2.63	0.02	0.099	0.17	0.25	2.39	0.17	0.22	2.18
Leverage	856	0.29	0.23	1.07	1,242	0.42	0.29	0.72	-0.13	0.000	0.29	0.23	1.07	0.29	0.23	1.33
VC	856	0.64	0.48	-0.58	1,242	0.48	0.50	0.09	0.16	0.000	0.64	0.48	-0.58	0.64	0.48	-0.58
Dual_Class_Shares	856	0.07	0.26	3.33	1,242	0.08	0.28	3.01	-0.01	0.297	0.07	0.26	3.33	0.07	0.26	3.33
Board_Size	856	4.76	1.96	0.19	1,242	5.61	2.05	0.07	-0.01	0.000	4.76	1.96	0.19	4.72	2.01	-0.17

Note: Table 9 presents descriptive statistics partitioned by firms with and without founder CEOs. The left hand side of Table 9 includes statistics for each subset and the difference between the subsets for the full sample of firms, as well as p-values from two-tailed *t-tests*. The right hand side of Table 9 presents statistics for each subset after reweighting the subset of non-founder firms as specified by the entropy balancing process. I do not provide differences and associated *t-tests* for the matched sample as they are insignificant by definition. Note I also include Fama-French industry classification and IPO year indicator variables as variables in the entropy balancing process. Thus, the covariate balance is not limited to these firm-specific variables but also extends to industry classification and the timing of the IPO. For variable definitions, please refer to the Methods section of my paper.

Table 10: Results for Hypothesis 1

Variable Name	Hypothesized Relation	*Second_In_ Command* (1)	(2)
Founder	*H1: +*	0.1245***	0.0868***
		(0.000)	(0.002)
CEO_No_Ops_Background		0.0463**	0.0545**
		(0.015)	(0.047)
CEO_Power		0.0421***	0.0518***
		(0.000)	(0.001)
CEO_New		0.0159	0.0015
		(0.481)	(0.956)
Startup		-0.0053	-0.0236
		(0.898)	(0.532)
MVE		0.0274***	0.0361**
		(0.007)	(0.030)
ROA		-0.0535	-0.1353
		(0.546)	(0.208)
AbsROA		0.0409	0.0127
		(0.619)	(0.916)
BTM		0.0005	-0.1124
		(0.992)	(0.158)
R&D_Intensity		-0.2875***	-0.4993***
		(0.000)	(0.000)
Leverage		-0.0089	-0.0557
		(0.894)	(0.393)
VC		-0.0614***	-0.0485
		(0.009)	(0.163)
Dual_Class_Shares		0.1318***	0.1028*
		(0.004)	(0.088)
Board_Size		0.0026	-0.0070
		(0.603)	(0.556)
First-stage entropy balance		*None*	*Founder (Table 3)*
Industry Fixed Effects		Included	Included
Time Fixed Effects		Included	Included
Observations		2,098	2,098
R-squared		0.083	0.111

Note: N = 2,098. Table 10 presents the results from estimating Equation 1, with Column 2 using the reweighted data resulting from the entropy balancing process determined in Table 9. I include P-values from two-tailed tests underneath each coefficient. The dependent variable is *Second_in_Command*. For variable definitions, please refer to the Methods section of my paper. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 11: Descriptive Statistics for Firms with and without Second-in-Commands

Panel A: Founder firms

	Founder-only sample										Entropy Balancing Matched Sample					
	Firms with second-in-command				Firms without second-in-command				Diff in Means		Firms with second-in-command			Firms without second-in-command		
Variable	n	Mean	S.D.	Skew	n	Mean	S.D.	Skew	Value	P-value	Mean	S.D.	Skew	Mean	S.D.	Skew
CEO_No_Ops_Background	416	0.75	0.44	-1.13	440	0.70	0.46	-0.90	0.04	0.184	0.75	0.44	-1.13	0.75	0.44	-1.13
CEO_Power	416	1.36	0.91	0.06	440	1.25	0.93	0.19	0.12	0.068	1.36	0.91	0.06	1.36	0.97	0.08
CEO_New	416	0.36	0.48	0.57	440	0.31	0.46	0.80	0.05	0.127	0.36	0.48	0.57	0.36	0.48	0.57
Startup	416	0.61	0.49	-0.43	440	0.74	0.44	-1.07	-0.13	0.000	0.61	0.49	-0.43	0.61	0.49	-0.43
MVE	416	5.76	1.05	0.31	440	5.57	0.93	0.31	0.19	0.005	5.76	1.05	0.31	5.76	1.12	0.46
ROA	416	-0.23	0.49	-2.21	440	-0.31	0.54	-2.18	0.07	0.036	-0.23	0.49	-2.21	-0.23	0.49	-2.46
AbsROA	416	0.32	0.43	2.75	440	0.38	0.49	2.70	-0.06	0.056	0.32	0.43	2.75	0.32	0.44	3.09
BTM	416	0.15	0.21	0.19	440	0.15	0.19	0.62	0.00	0.980	0.15	0.21	0.19	0.15	0.18	0.28
R&D_Intensity	416	0.13	0.22	2.77	440	0.21	0.28	2.14	-0.09	0.000	0.13	0.22	2.77	0.13	0.19	2.64
Leverage	416	0.32	0.24	1.01	440	0.27	0.21	1.05	0.05	0.001	0.32	0.24	1.01	0.32	0.23	0.67
VC	416	0.57	0.50	-0.29	440	0.70	0.46	-0.88	-0.13	0.000	0.57	0.50	-0.29	0.57	0.50	-0.29
Dual_Class_Shares	416	0.11	0.31	2.48	440	0.03	0.18	5.14	0.08	0.000	0.11	0.31	2.48	0.11	0.31	2.48
Board_Size	416	4.72	2.17	0.15	440	4.79	1.74	0.28	-0.06	0.627	4.72	2.17	0.15	4.72	1.79	0.24

Panel B: Non-founder firms

	Non-founder-only sample										Entropy Balancing Matched Sample					
	Firms with second-in-				Firms without second-in-				Diff in Means		Firms with second-in-			Firms without second-		
Variable	n	Mean	S.D.	Skew	n	Mean	S.D.	Skew	Value	P-value	Mean	S.D.	Skew	Mean	S.D.	Skew
CEO_No_Ops_Background	443	0.53	0.50	-0.12	799	0.48	0.50	0.08	0.05	0.084	0.53	0.50	-0.12	0.53	0.50	-0.12
CEO_Power	443	0.91	0.91	0.57	799	0.67	0.77	0.93	0.24	0.000	0.91	0.91	0.57	0.91	0.86	0.58
CEO_New	433	0.67	0.47	-0.74	799	0.66	0.48	-0.66	0.02	0.548	0.67	0.47	-0.74	0.67	0.47	-0.74
Startup	433	0.43	0.50	0.27	799	0.51	0.50	-0.05	-0.08	0.008	0.43	0.50	0.27	0.43	0.50	0.27
MVE	443	6.07	1.12	0.22	799	5.84	1.04	0.35	0.23	0.000	6.07	1.12	0.22	6.07	1.11	0.29
ROA	443	-0.20	0.49	-2.99	799	-0.23	0.48	-2.49	0.03	0.273	-0.20	0.49	-2.99	-0.20	0.47	-2.87
AbsROA	443	0.26	0.45	3.35	799	0.30	0.44	2.95	-0.04	0.163	0.26	0.45	3.35	0.26	0.43	3.27
BTM	443	0.20	0.28	0.70	799	0.15	0.26	0.27	0.05	0.002	0.20	0.28	0.70	0.20	0.27	0.44
R&D_Intensity	443	0.11	0.23	3.40	799	0.18	0.26	2.35	-0.06	0.000	0.11	0.23	3.40	0.11	0.20	2.79
Leverage	443	0.45	0.30	0.62	799	0.41	0.29	0.78	0.04	0.027	0.45	0.30	0.62	0.45	0.29	0.56
VC	443	0.40	0.49	0.40	799	0.52	0.50	-0.07	-0.12	0.000	0.40	0.49	0.40	0.40	0.49	0.40
Dual_Class_Shares	443	0.12	0.33	2.28	799	0.06	0.24	3.66	0.06	0.000	0.12	0.33	2.28	0.12	0.33	2.28
Board_Size	433	5.70	2.24	0.01	799	5.57	1.93	0.10	0.13	0.295	5.70	2.24	0.01	5.70	2.06	0.09

Note: Panel A of Table 11 presents descriptive statistics for founder-led firms, partitioned by firms with and without a second-in-command. Panel B of Table 11 presents descriptive statistics for non-founder-led firms, partitioned by firms with and without a second-in-command. In both panels, the left hand side includes statistics for each subset and the difference between the subsets, as well as p-values from two-tailed *t-tests*. The right hand side presents statistics for each subset after reweighting the subset of control firms as specified by the entropy balancing process. I do not provide differences and associated *t-tests* for the matched sample as they are insignificant by definition. Note I also include Fama-French industry classification and IPO year indicator variables as variables in the entropy balancing process. Thus, the covariate balance is not limited to these firm-specific variables but also extends to industry classification and the timing of the IPO. For variable definitions, please refer to the Methods section of my paper.

Table 12: Results for Hypothesis 2

Variable Name	Hypothesized Relation	*Founders (DV=BHAR)* (1)	*Non-Founders (DV=BHAR)* (2)
Second_in_Command	*Founders: H2+*	0.1355*	-0.2856***
	Non-founders: H2-	(0.079)	(0.001)
CEO_No_Ops_Background		0.0943	-0.1734**
		(0.309)	(0.044)
CEO_Power		0.0498	0.0205
		(0.622)	(0.602)
CEO_New		0.1220	-0.0049
		(0.423)	(0.956)
Startup		0.0966	0.0696
		(0.374)	(0.651)
MVE		0.0996	0.0747**
		(0.370)	(0.043)
ROA		-0.1954	0.7308**
		(0.605)	(0.018)
AbsROA		-0.2667	0.5825**
		(0.168)	(0.037)
BTM		0.5933*	0.2616
		(0.073)	(0.145)
R&D_Intensity		1.0211***	0.4839
		(0.000)	(0.229)
Leverage		0.3729	0.6136***
		(0.265)	(0.007)
VC		0.0089	0.1079
		(0.938)	(0.395)
Dual_Class_Shares		-0.3691**	-0.0280
		(0.047)	(0.893)
Board_Size		-0.0617*	-0.0021
		(0.050)	(0.937)
p-Value for difference in coefficient of second_in_command		p<0.001	
First-stage entropy balance		*Second_In_ Command (Panel A, Table 5)*	*Second_In_ Command (Panel B, Table 5)*
Industry Fixed Effects		Included	Included
Time Fixed Effects		Included	Included
Sample restrictions		*Founder=1*	*Founder=0*
Observations		856	1,242
R-squared		0.060	0.039

Note: Column 1 restricts the sample to only founder-led firms (N=856) and uses the reweighted data resulting from the entropy balancing process determined in Panel A of Table 11. Column 2 restricts the sample to only non-founder-led firms (N=1,242) and uses the reweighted data resulting from the entropy balancing process determined in Panel B of Table 11. I include P-values from two-tailed tests underneath each coefficient. The dependent variables is *BHAR*. For variable definitions, please refer to the Methods section of my paper. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 13: Supplemental Analysis: Testing the Mechanisms

Variable Name	Expected Relation	*BHAR* (1)	*BHAR* (2)	*BHAR* (3)
Second_in_Command		-0.1377	-0.2272	-0.4267*
		(0.312)	(0.244)	(0.085)
*Second_in_Command * CEO_No_Ops_Background*	+	0.3666***		0.3001***
		(0.002)		(0.007)
*Second_in_Command * CEO_Power*	+		0.2662**	0.2484*
			(0.048)	(0.063)
CEO_No_Ops_Background		-0.0910	0.0991	-0.0529
		(0.350)	(0.264)	(0.578)
CEO_Power		0.0506	-0.0774	-0.0683
		(0.616)	(0.495)	(0.549)
CEO_New		0.1144	0.1133	0.1077
		(0.466)	(0.472)	(0.505)
Startup		0.1069	0.0856	0.0947
		(0.390)	(0.437)	(0.424)
MVE		0.1060	0.0977	0.1031
		(0.342)	(0.383)	(0.358)
ROA		-0.2419	-0.2396	-0.2748
		(0.504)	(0.532)	(0.460)
AbsROA		-0.3107*	-0.3237	-0.3559*
		(0.092)	(0.110)	(0.071)
BTM		0.6122*	0.5674*	0.5847*
		(0.069)	(0.080)	(0.079)
R&D_Intensity		1.0176***	1.0141***	1.0117***
		(0.000)	(0.000)	(0.000)
Leverage		0.3821	0.3633	0.3714
		(0.241)	(0.251)	(0.227)
VC		-0.0041	-0.0077	-0.0172
		(0.973)	(0.946)	(0.882)
Dual_Class_Shares		-0.3685**	-0.4160**	-0.4124**
		(0.049)	(0.023)	(0.025)
Board_Size		-0.0617*	-0.0612*	-0.0612*
		(0.054)	(0.056)	(0.055)
First-stage entropy balance		*Second_In_ Command (Panel A, Table 6)*	*Second_In_ Command (Panel A, Table 6)*	*Second_In_ Command (Panel A, Table 6)*
Industry Fixed Effects		Included	Included	Included
Time Fixed Effects		Included	Included	Included
Sample restrictions		*Founder=1*	*Founder=1*	*Founder=1*
Observations		856	856	856
R-squared		0.062	0.064	0.065

Note: Column 1 restricts the sample to only founder-led firms (N=856) and uses the reweighted data resulting from the entropy balancing process determined in Panel A of Table 11. I include P-values from two-tailed tests underneath each coefficient. The dependent variables is *BHAR*. For variable definitions, please refer to the Methods section of my paper. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 14: Survey Response Rates

	Survey year		
	2017	**2018**	**2019**
Individual response rate	336 / 884 = **38%**	233 / 781 = **30%**	178 / 612 = **29%**
Company response rate	133 / 247 = **54%**	109 / 224 = **49%**	76 / 157 = **48%**

Table 15: Descriptive Statistics

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13	14	Mean	S.D.	Min	Mdn	Max
Sense_of_Community	1	1.00														5.05	1.04	1.33	5.00	7.00
Engagement_in_Community	2	0.58	1.00													4.08	1.32	1.00	4.00	7.00
Importance_of_Community	3	0.40	0.37	1.00												5.92	0.92	2.33	6.00	7.00
Investors_from_Community	4	0.11	0.16	0.16	1.00											1.39	0.84	1.00	1.00	5.00
Solo	5	0.04	0.11	0.02	-0.18	1.00										0.16	0.37	0.00	0.00	1.00
Founder	6	0.13	0.25	0.10	-0.08	0.47	1.00									0.36	0.48	0.00	0.00	1.00
Minority	7	0.23	0.18	0.22	0.22	0.11	0.02	1.00								0.29	0.45	0.00	0.00	1.00
No_Startup_Exp	8	0.09	0.00	0.07	0.05	0.02	0.15	0.00	1.00							0.95	0.21	0.00	1.00	1.00
Market_Logic	9	-0.14	-0.22	-0.16	-0.21	-0.07	-0.12	-0.18	0.05	1.00						0.37	0.48	0.00	0.00	1.00
Age	10	-0.01	0.09	-0.05	-0.21	0.21	0.36	-0.12	0.01	0.03	1.00					35.27	8.10	19.00	34.00	52.00
Female	11	-0.06	-0.04	0.07	0.18	-0.12	-0.32	0.03	0.02	-0.06	-0.29	1.00				0.33	0.47	0.00	0.00	1.00
Full_Time	12	0.03	-0.03	-0.01	-0.07	-0.18	0.00	-0.06	-0.09	0.04	-0.13	-0.06	1.00			0.87	0.34	0.00	1.00	1.00
Moved	13	-0.01	-0.01	0.15	0.04	0.01	0.05	0.08	0.08	-0.13	-0.01	-0.02	0.08	1.00		0.17	0.38	0.00	0.00	1.00
HQ	14	-0.02	-0.03	-0.02	0.13	0.08	0.10	-0.04	0.07	0.02	0.06	0.01	-0.03	0.06	1.00	0.87	0.34	0.00	1.00	1.00

Note: See Appendix A for variable definitions.

Table 16: What is Driving the Changing Nature of Work?

Driver	Explanation
Technology	Though finding nonstandard work has historically been difficult, recent technological advances make it much easier. This includes social media, online ads or job boards, sharing economy websites or apps (Uber, Airbnb, etc.), or online freelance marketplaces or platforms (Upwork, Freelancer, 99designs, etc.). For example, the Oxford Internet Institute found that the number of projects that corporations were sourcing from these platforms increased 26% from 2016 to 2017, with popular categories being software development, creative and design, and writing (Corporaal and Lehdonvirta, 2017).
Demographics	Compared to prior generations, Millennials prefer more autonomy, career flexibility, casual and fun work environments, flexible hours, and "results-only" work policies in which they are free to choose how, when, and where to go about their work as long as they meet certain criteria (Alsop, 2008). All of these factors are driving more Millennials to nonstandard work – in fact, the Freelancing in America (2017) survey found that 47% of 18-34 year-olds do some form of nonstandard work at least part-time, compared to only 27% of people over 45.
Nonwage benefits	Many people opt for standard employment for nonwage benefits, with health insurance being the most notable. However, in recent decades, the number of employers providing these benefits has been steadily declining (Farber and Levy, 2000; Pierce, 2001). Recently, the passage of the Affordable Care Act (ACA) in the United States making it even more costly for employers to offer benefits to standard workers, as well as making it easier for nonstandard workers to obtain access to health insurance. This creates incentives for firms to use more contractor work and outsourcing (Bidwell et al., 2013).
Stigma	In the past, a negative stigma surrounded non-standard workers, viewing them as marginalized people in peripheral jobs (Ashford et al., 2007). In recent years, however, this stigma is beginning to dissipate as more "supertemps" (e.g., top managers and professionals such as lawyers, CFOs, and consultants) enter nontraditional work (Miller and Miller, 2012). This has helped add legitimacy and even prestige to nonstandard work. This same sentiment is also evident in the Freelancing in America (2017) survey, in which 70.0% of respondents agreed that perceptions of nonstandard careers are becoming more positive.

Table 17: Design Choices for Coworking Spaces

Design dimension	Explanation
Private offices vs. open space	Coworking spaces vary on the type of space they offer. Most coworking spaces have large, open areas with desks, tables, chairs, and couches, where seating is "first come first serve." However, some coworking spaces (approximately 25%, according to Deskmag, 2018) also have private offices available for rent.
Rent/leases	Coworking spaces charge a monthly rent to tenants. The amount of rent depends on the size of the space being rented, with private offices being more expensive than open coworking. Most leases are month-to-month, allowing tenants the flexibility to cancel at any time.
Amenities	Coworking spaces generally offer a variety of amenities, which could include office furnishings (desks, tables, chairs, couches, etc.), access to conference rooms, WiFi, printing, exercise equipment, and free food and beverages. WeWork, for example, is known for its free-flowing alcohol available to all tenants.
Aesthetics/ambiance	Although some coworking spaces are designed to look and feel like traditional offices, the vast majority attempt to create a different type of atmosphere and ambiance. The spaces are designed to encourage interaction, creativity, and innovation.
Members	Some coworking spaces will allow anyone to work at their space as long as they are able to pay the rent, resulting in a mix of startup companies, small businesses, remote workers, freelancers, and independent contractors. Other coworking spaces choose to focus, perhaps on a particular group (e.g., startups or freelancers) or on a particular industry (e.g., media, software, FinTech, etc.).
Sponsors/partners	Deskmag (2018) estimated that only about 40% of all coworking spaces were profitable in 2017. Many coworking spaces do not collect enough rent to cover their expenses, and thus seek out funding from sponsorships by local governments, universities, and corporations. In addition, many coworking spaces partner with other members of the entrepreneurial ecosystem (accelerators, incubators, etc.) to coordinate events and initiatives.
Events/trainings	Many coworking spaces offer many events, ranging from professional networking opportunities to more social interaction (game nights, watching sports, etc.). Many spaces also offer optional trainings or workshops on topics that are of interest to their tenants, such as how to fundraise, how to acquire customers, how to find health insurance or deal with taxes, etc.

Table 18: Comparing Accelerators, Incubators, and Coworking Spaces

Dimension	Accelerators	Incubators	Coworking spaces	Maker spaces
Participants	High-growth startups	Startups	Startups, small businesses, freelancers, independent workers, remote workers	Individual inventors or innovators
Amount of structure	High	Medium	Low	Low
Application process?	Yes	Yes	No	No
Limited time?	Yes (program lasts 3-6 months)	Yes (typically stay 6-12 months)	No (tenants stay as long as they can pay rent)	No (individuals come and go as they please)
Payment required	Takes portion of equity	Fee for service (sometimes equity)	Monthly rent	Often free for certain community, but sometimes a membership fee
Purpose	Rapid growth	Nurturing development	Space, community	Innovation, creation of products
Amount of resources provided	High (seed capital, intensive mentoring/ training, service providers, co-working space)	Medium (mentoring, service providers, co-working space)	Low (space, amenities, and occasional events)	Medium (provide hardware and software tools, and sometimes mentors)

Table 19: The Benefits of the Coworking Space

Category	Explanation	Representative quotations
Efficiency	Tenants generally pay more per square foot at a coworking space than they would in a traditional office space, but they are essentially buying convenience. They spend less time worrying about utilities, internet, etc., and more time focused on their company. In addition, the price per square foot is often misleading because all tenants have access to conference rooms, shared workspaces, free amenities, and other resources that entrepreneurs are often not able to afford by themselves.	• "It was really nice to come in and just not have to worry about a lot of that practical stuff. And just be able to come in and really focus on trying to grow our business and reach towards our purpose in the company." • "I don't have to worry about anything. It's just a monthly rent and everything is taken care of...I don't have to worry about maintenance or worrying about when the Wi-Fi goes out." • "I wasted so much time at my first two companies... designing these super cool offices. I shudder to think how much money I wasted on that, and more importantly time. So inefficient…" • "The price per square foot is higher, but the difference is convenience. I can walk in and start working without having to worry about utilities, internet, cleaning, etc… it's worth it."
Flexibility	Traditional office spaces often require tenants to sign multi-year leases, but entrepreneurs are hesitant to do this because they do not know how quickly they will grow and need to move, or whether they will even be in business in a few months. Coworking provides a solution by offering month-to-month leases and flexible arrangements	• "In traditional office spaces, the lease you have to sign is typically like a three year lease at least, usually five or ten years. Here, you come in, it's month to month, you know? If you need more space you just call whoever, and next thing you know you've got two rooms instead of one." • "It's so modular and flexible, right? If you need more space, you add a new office. If you need to shrink, you get rid of one of your offices." • "When we first moved in we were like, oh, month to month lease. If we can't get clients, we'll drop it."
Legitimacy	Coworking spaces help new ventures appear bigger or more legitimate than they really are. For example, when companies host potential clients, investors, or hires, they are able to hold these meetings in a conference room in a professional setting, rather than a home office or a coffee shop.	• "I don't know where we'd be if we didn't work here... Honestly, it would have really constrained our growth potential because we couldn't have taken our client meetings at a home office or in a garage or at a coffee shop." • "The space was huge for recruiting. So when we were bringing people in and selling them on this vision like 'our company is gonna be huge someday. You wanna be part of it and this is really a cool place to work.' That was huge." • "We're always having folks come like partners, come visit us, and it's just so nice to have, be like, "Oh, yeah, I booked this conference room."

Table 20: The Benefits of the Coworking Community

Category	Explanation	Representative quotations
Connections	Coworking spaces offer unprecedented opportunities for networking just by being in physical proximity to other startups, and through events and other formal activities offered. These interactions often lead to referrals for new clients, employees, investors, service providers, etc.	• "With fundraising, we've gotten to know people who know people, and then we can reach out to them." • "I think just the physical proximity to other people who are doing what you're doing... nothing will ever compare to those spontaneous connections you make in the kitchen, or walking in the hall... it's just been great networking, just by physical proximity." • "It's helped us as a company get a lot of connections. We have been able to network quite a bit through [coworking central] and get opportunities we probably would never have gotten. It's a huge resource."
Solutions	Entrepreneurs, especially first-time entrepreneurs, often do not have the experience or knowledge to navigate the complexities of starting a new venture. As such, many entrepreneurs rely on help from other members of the community to solve problems and answer questions.	• "If you don't know how to do this or you don't know how to do that, there's somebody around here who has an idea and people are super generous with their time. It's truly a community..." • "It's great, because if I have a development problem, I can go ask other developers like, 'Hey, can you look at this?'" • "The community is big…I feel that you can reach out to anybody here, if you need to know something, learn something, and that's huge when you're a startup."
Energy/ motivation	Being surrounded by other entrepreneurs is often energizing and motivating. The passion and intensity with which most entrepreneurs go about their work is usually contagious. Thus, many of the entrepreneurs considered one main advantage to be the environment, or the "vibe" that existed within the space.	• "Getting to come to a place like this, where there is a buzz about it is something that I think helps motivate our people. I think that's really important." • "You kind of see the same people all the time and see them progress. It pushes you too...We get energized by what's going on and the other community members." • "It's inspiring. It's nice to see so many people also so passionate about what they're doing. That's the common thread. It doesn't matter what it is they're doing, they're just passionate about it. And that feels good." • "That feeling like I'm a part of this movement, and this larger community is just tremendous"
Social support	Entrepreneurial work can sometimes be isolating and lonely. The friendships developed between entrepreneurs at coworking spaces can alleviate some of these downsides. These friendships are important, as they provide social support when times get tough, or simply make the entrepreneurs' work more enjoyable.	• "For me, it's really the social support... having other people to vent to if you have a project that's really frustrating or a client that's giving you trouble, or I'm just mad at my cofounder for some reason." • "When I've been able to sit down and have conversations with other entrepreneurs… you could say it's a little bit like a therapy session, talking about all the ups and downs" • "Community is important. It's like some of us went out for beers the other night and it's just really nice to be around other people going through this."

Table 21: OLS Regression Using Coworking Central Survey Data

Variable Name	*Sense of Community* (1)	*Engagement in Community* (2)	*Importance of community* (3)	*Investors from community* (4)
Solo	-0.2093*	-0.0695	-0.1318	-0.4362***
	(0.067)	(0.619)	(0.335)	(0.000)
Founder	0.2648***	0.6183***	0.2584**	
	(0.005)	(0.000)	(0.019)	
Minority	0.3561***	0.3448***	0.3266***	0.3306***
	(0.000)	(0.001)	(0.001)	(0.006)
No_Startup_Experience	0.4176**	0.4707**	0.2810	0.0021
	(0.022)	(0.035)	(0.154)	(0.997)
Market_Logic	-0.2240***	-0.4529***	-0.2380**	-0.2390**
	(0.004)	(0.000)	(0.011)	(0.040)
Age	-0.0046	0.0102*	-0.0062	-0.0160**
	(0.357)	(0.091)	(0.297)	(0.029)
Female	-0.0975	0.1376	0.1746*	0.2381*
	(0.233)	(0.167)	(0.078)	(0.076)
Full_Time	-0.1144	-0.1565	-0.0578	-0.2866*
	(0.305)	(0.250)	(0.665)	(0.063)
Moved	0.0503	0.1098	0.2147*	0.0152
	(0.613)	(0.366)	(0.083)	(0.911)
HQ	0.0671	0.1630	0.0801	0.3746
	(0.566)	(0.254)	(0.572)	(0.286)
Total_ft_employees				-0.0061
				(0.632)
Funded				0.0557
				(0.678)
Company_age				-0.0046
				(0.753)
Year dummy variables	Included	Included	Included	Included
Observations	747	747	412	242
R-squared	0.076	0.139	0.098	0.168

Note: For variable definitions, please refer to Appendix A. Columns 1, 2, and 3 of Table 22 provide results at the individual level of analysis, with each observation representing a respondent to the survey (the observations in Column 3 are lower because data on *Importance_of_Community* was not collected in the 2017 survey). Column 4 of Table 22 provides results for founders only, as they are the only respondents to fill out company-level information including *Investors_from_Community*. I include P-values from two-tailed tests underneath each coefficient. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Figure 1: Surrounding the Founder: The Hidden Figures of Entrepreneurship

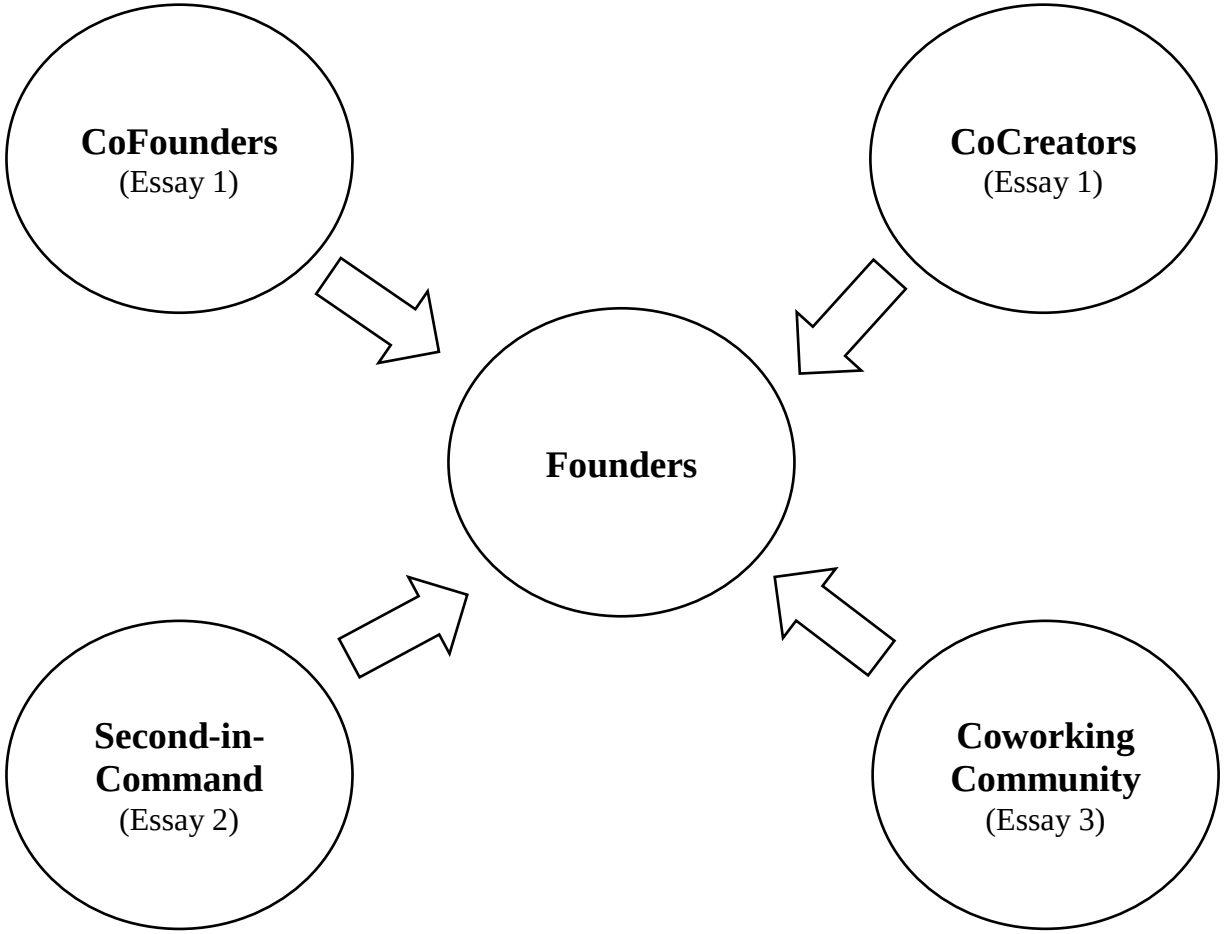


Figure 2: A Summary of Prior Literature

Benefits of co-founders	Costs of co-founders
Resources (human, social, and financial capital) - Ucbasaran et al., 2003; Aldrich & Kim, 2007; Cooper et al., 1994; Aldrich et al., 2004 *Social/psychological support* (improve decision-making, cope with loneliness) - De Dreu, 2006; De Jong et al., 2013; Wasserman, 2012	*Coordination/monitoring costs* (it takes time to manage group efforts) - Deichmann and Jensen, 2018; Marks et al., 2001; Cohen and Bailey, 1997 *Conflict* (highly likely in a founding team) - Wasserman, 2012; Jung et al., 2017; Ensley et al., 2002

Figure 3: Answering the Research Question

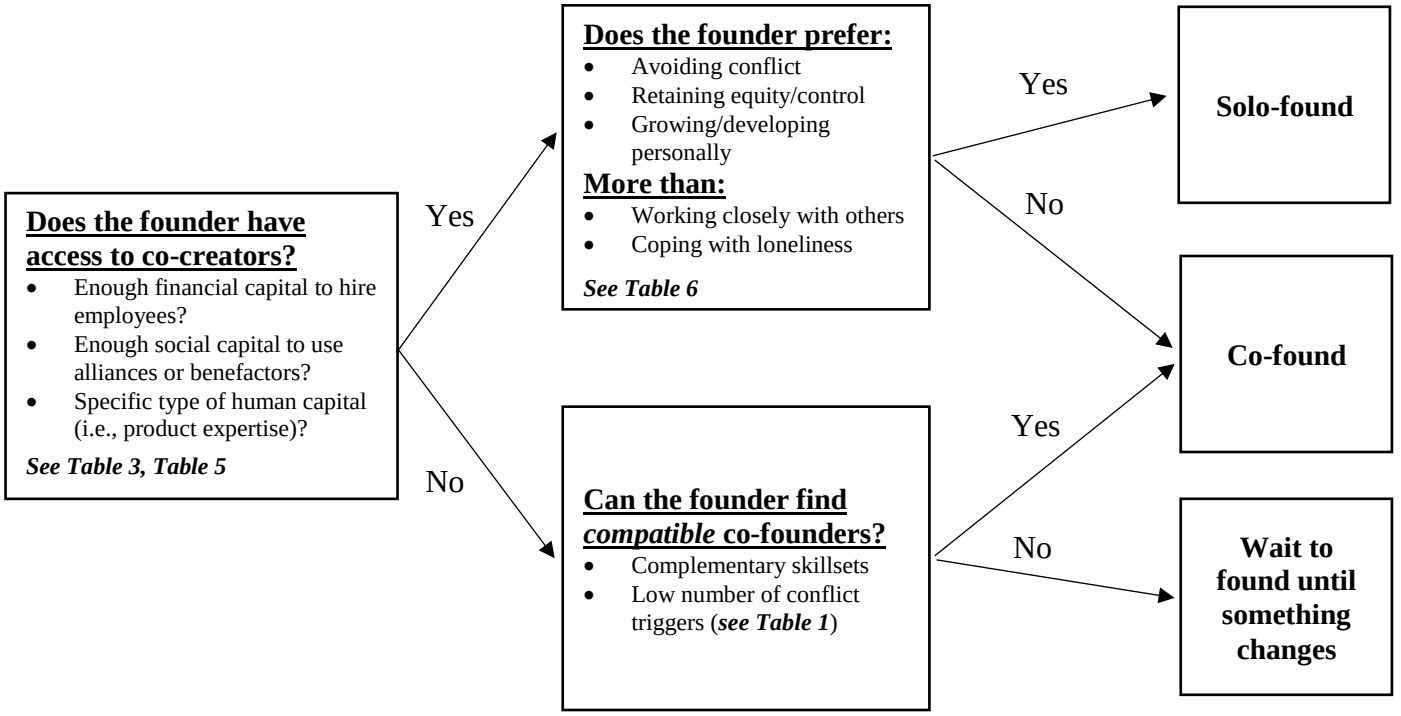
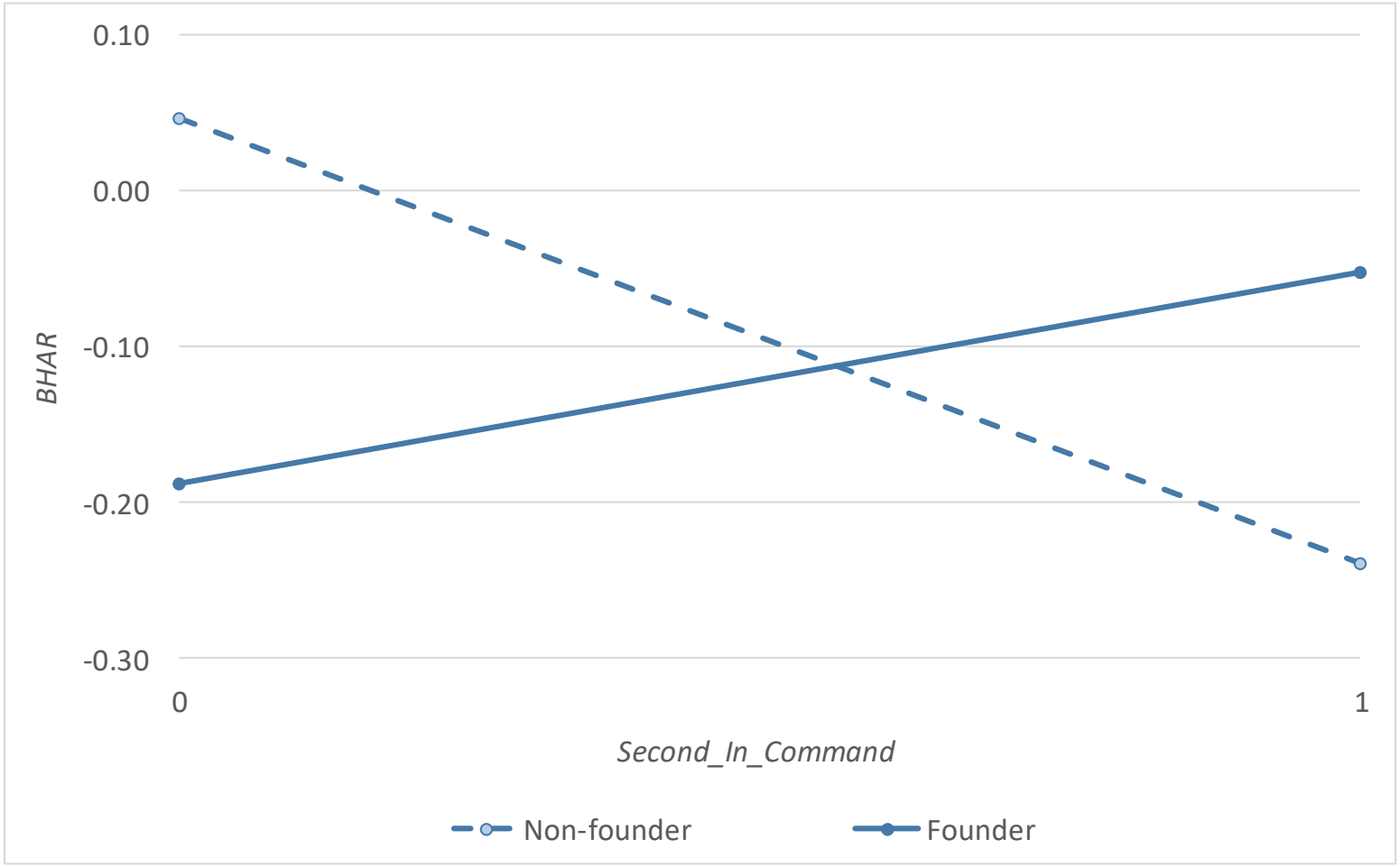
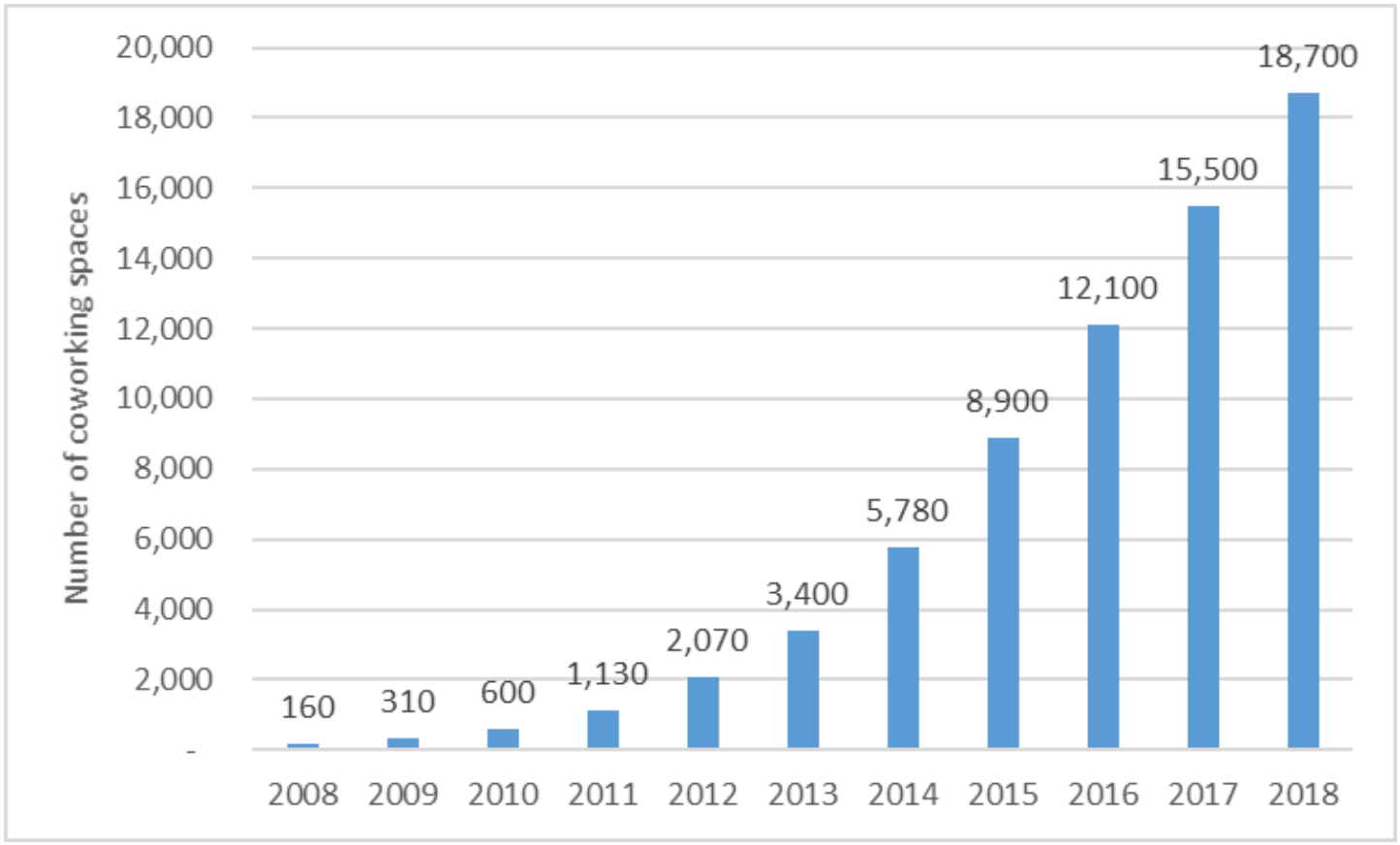


Figure 4: Sensitivity of Firm Performance to the Presence of a Second-in-Command



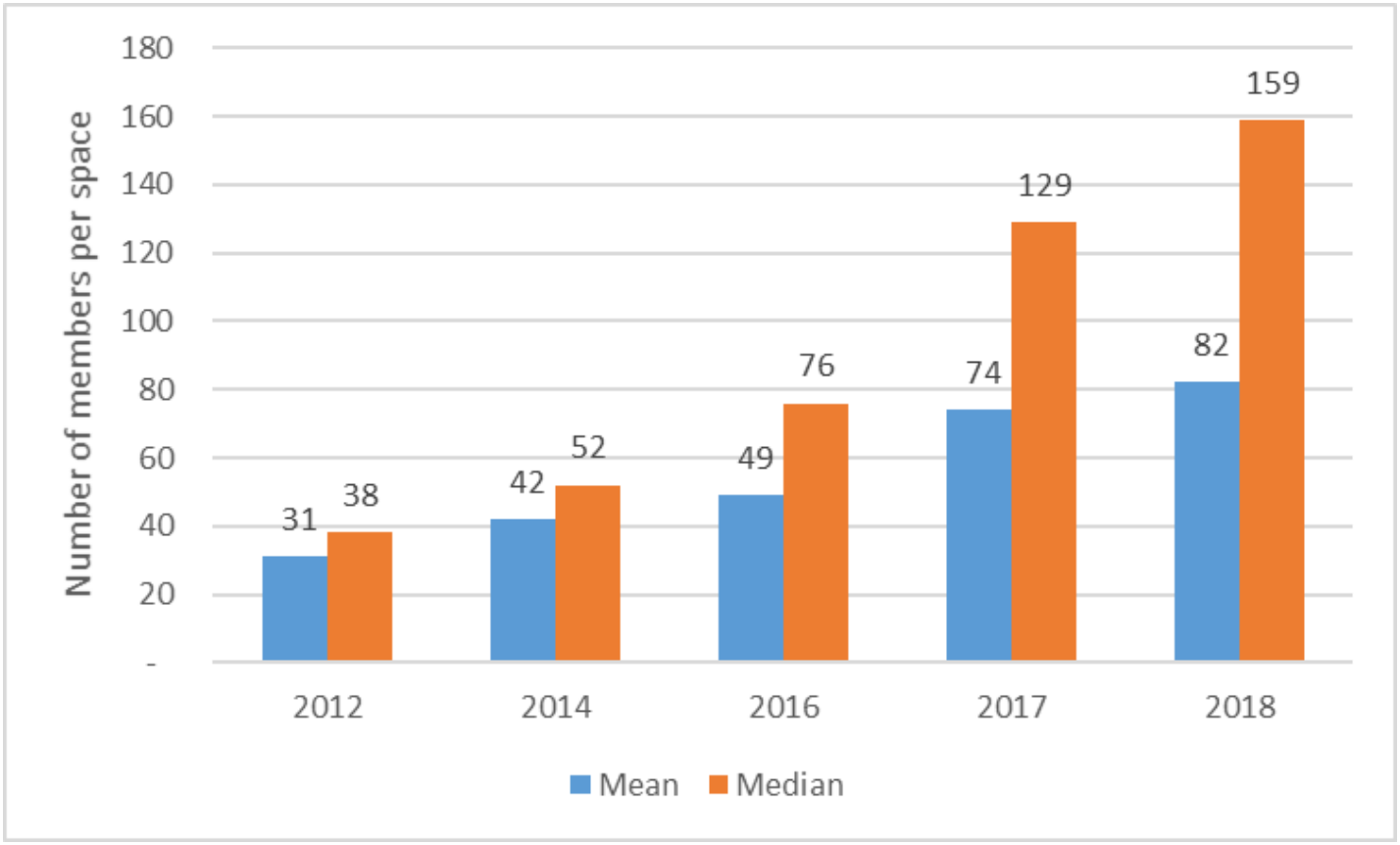
Note: This figure depicts the marginal effect of the presence of a second-in-command on firm performance by founder CEO classification. The solid line represents the results for founder-led firms, as documented in Column 1 of Table 12, whereas the dashed line represents the results for non-founder-led firms as documented in Column 2 of Table 12. *BHAR* is the firm's buy-and-hold abnormal stock return during a CEO's tenure.

Figure 5: Global Number of Coworking Spaces by Year



Note: Source: Deskmag (2019)

Figure 6: Number of Members per Coworking Space by Year



Note: Source: Deskmag (2018). There are data gaps in years 2013 and 2015 in which the survey did not capture this data.

APPENDIX A: VARIABLE DEFINITIONS

- *AbsROA* – The absolute value of ROA, as defined below
- *Age* – The individual's age (in years) at the time of the survey
- *BHAR* – The firm's gross buy and hold returns over the three years subsequent to the firm's IPO and subtracting the CRSP value-weighted buy and-hold return during that same period of time
- *Board_Size* – The number of external board members.
- *BTM* – The firm's book value of assets divided by the firm's market value of equity at time of IPO
- *CEO_New* – A binary variable indicating whether the CEO was in their first three years of tenure as CEO
- *CEO_Ops* – A binary variable that takes the value of one if the CEO has a background in operations
- *CEO_Power* – An index variable ranging from 0 to 3, with higher values indicating a more powerful CEO and thus less confusion around unity of command. Refer to the methods section for a detailed overview of the construction of this variable
- *Company_Age* – The company's age (in years) at the time of the survey
- *Dual_Class_Shr* – A binary variable indicating whether the firm has two or more different classes of common shares at time of IPO
- *Engagement_in_Community* – Measures the extent to which the individual is engaged in the coworking community. This measure is calculated by taking the average rating from a three-item scale (see question 18 in Appendix B)
- *Female* – Binary variable taking the value of 1 if the individual is female, and 0 otherwise
- *Founder* – A binary variable indicating whether the firm has a founder CEO at time of IPO
- *Founder* – Binary variable taking the value of 1 if the individual is a founder
- *Full_Time* – Binary variable taking the value of 1 if the individual reported they were working on their venture full-time at the time of the survey, and 0 otherwise
- *Funded* – Binary variable taking the value of 1 if the company has received outside funding from VCs or angels, and 0 otherwise
- *HQ* – Binary variable taking the value of 1 if the company is headquartered at the coworking space, and 0 otherwise
- *Importance_of_Community* – Measures the extent to which a sense of community is important to the respondent. I asked respondents to rate how important different aspects of the community were to them (see question 17 in Appendix B). This measure was calculated as the average rating for these two items: "A sense of collegiality; A sense of community."

- *Investors_from_Community* – Measures the extent to which the coworking community has helped the company find investors, with a higher rating indicating that the space has helped them find more investors (see question 6 in Appendix B)
- *Leverage* – The ratio of total liabilities to total assets at time of IPO
- *Market_Logic* – Measures the extent to the entrepreneur is motivated by making money. I asked respondents to rate how much they were motivated by a variety of factors (see question 21 in Appendix B). I then averaged the rating for these two items: "To develop a highly profitable company; To make money." If the average of these items was higher than the ratings for all other factors, I coded this condition as 1, and 0 otherwise
- *Minority* – Binary variable taking the value of 0 if the individual reports their race as White/Caucasian, and 1 otherwise
- *Moved* – Binary variable taking the value of 1 if the entrepreneur moved to the area from another city to start their business, and 0 otherwise
- *MVE* – The natural log of a firm's market value of equity plus one at time of IPO
- *No_Startup_Experience* – Binary variable taking the value of 1 if the individual reported having zero years of startup experience prior to entering their current position, and zero otherwise.
- *R&D_Intensity* – The ratio of each firm's research and development expenses to its book value of assets at time of IPO
- *ROA* – The firm's return on assets over the twelve months prior to the initial public offering
- *Second_in_Command* – An indicator variable that takes the value of one if the firm has a Chief Operating Officer (COO) or a non-CEO executive who holds the title of "President" at time of IPO, per the firm's IPO registration statement
- *Sense_of_Community* – Measures the extent to which the individual feels a sense of community in the coworking space. This measure is calculated by taking the average rating from a three-item scale (see question 19 in Appendix B).
- *Solo* – Binary variable taking the value of 1 if the individual is the only person from his/her company who works at the coworking space, and 0 otherwise
- *Startup* – A binary variable that takes the value of one if the firm's revenues for the year preceding the IPO were under $50 million
- *Total_ft_employees* – Total number of full-time employees reported by the company at the time of the survey
- *VC* – A binary variable indicating whether the firm has venture capital funding prior to its initial public offering

APPENDIX B: SURVEY QUESTIONS

1. Please select which role best describes you:
    a. Founder/co-founder
    b. Site Leader (for co's not headquartered in Coworking Central)
    c. Employee

2. Are you currently searching (or expecting to search in the future) for another co-founder? (Yes/No/Maybe)

3. Please select the following that best describes your company's growth plans:
    a. Don't intend to grow any larger
    b. Intend to grow somewhat larger, but not much
    c. Intend to grow much larger
    d. Other _____

4. Please select the following that best describes your company (For-profit/not-for-profit)

5. In the history of your company, have you ever raised or used capital from the following sources? (check all that apply): Bank Loans, Personal Investment, Friends and family, Angel Investors, Venture Capital, Crowdfunding, Accelerator, Grants, Other

6. Of all your investors/other capital providers, how many did the Coworking Central community help you find?
    a. None
    b. A small percentage of my investors/capital providers
    c. A moderate percentage of my investors/capital providers
    d. A significant percentage of my investors/capital providers
    e. All of my investors/capital providers

7. In the last year, how much capital did your business raise? _____

8. As of September 30, 2018, please indicate the *total* number of employees in the following categories: (Full-time, Part-time, Contractors)

9. In the past year, how many *net* positions did your company *create* in the following categories? (Full-time, Part-time, Contractors)

10. Out of all your employees, how many has the Coworking Central community helped you find/hire?
    a. None
    b. A small percentage of my employees
    c. A moderate percentage of my employees
    d. A significant percentage of my employees
    e. All of my employees

11. Has your company ever earned revenue? (Yes/No)

12. Approximate the annual revenue of your company:
    a. Under $10,000
    b. $10,000 to $50,000
    c. $50,000 to $100,000
    d. $100,000 to $500,000
    e. $500,000 to $1 Million
    f. $1 Million to $10 Million
    g. $10 Million to $50 Million
    h. $50 Million+
    i. Don't know
    j. Prefer not to answer

13. Out of all your customers, how many has the Coworking Central community helped you find?
    a. None
    b. A small percentage of my customers
    c. A moderate percentage of my customers
    d. A significant percentage of my customers
    e. All of my customers

14. As of September 30, 2018, is your company cash flow positive? (Yes/No)

15. How long have you been working with your company? _____

16. Using a 7-point Likert scale, I asked respondents to rate the degree to which they agreed that Coworking Central performs well on these dimensions: Opportunities to gain publicity, Opportunities to learn, Opportunities for mentorship, Opportunities for professional networking, Opportunities for social networking, Connections to potential customers, Connections to potential investors, Connections to potential employees, Social support/friendship, New ideas, Feedback on my ideas, Improvements to my company's product/service, Solutions to specific problems, Referrals to others who can assist, Somewhere to work besides home, Dedicated space to work, Monthly cost, The aesthetics of the space, The amenities of the space, An innovative environment, A sense of professionalism, A sense of energy, A sense of collegiality, A sense of community

17. Using a 7-point Likert scale, I also asked respondents to rate how important the items in question 16 were to them.

18. Using a 7-point Likert scale, I asked respondents to rate the degree to which they agree with the following statements:
    a. I actively try to meet other people at Coworking Central
    b. I actively seek out advice from others at Coworking Central
    c. Other people at Coworking Central seek me out for advice

19. Using a 7-point Likert scale, I asked respondents to rate the degree to which they agree with the following statements:
    a. I feel connected to the Coworking Central community
    b. I feel accepted by others in the Coworking Central community
    c. People at Coworking Central are good at influencing each other

20. Using a 7-point Likert scale, I asked respondents to rate the degree to which they agree with the following statements:
    a. Being a part of the Coworking Central community energizes me
    b. Being at Coworking Central gives my company more legitimacy
    c. Working at Coworking Central is more cost effective than other alternatives
    d. Overall, I would recommend working at Coworking Central to a friend
    e. The Triangle entrepreneurial community (at large) has positively impacted my business' current and/or future success.

21. Using a 7-point Likert scale, I asked respondents to indicate the extent to which they agreed with the following statements as motivations for why they are working on their particular company:
    a. To develop a highly profitable company
    b. To make new connections in the entrepreneurial community
    c. To work with people I like
    d. To make the world a better place
    e. To work on something I'm passionate about
    f. To gain new skills
    g. To work in an innovative environment
    h. To gain entrepreneurial experience
    i. To have fun
    j. To have greater flexibility for my personal life
    k. To make money
    l. To help others
    m. To control my own time
    n. To develop a cool/important product
    o. To avoid working in a big company
    p. To provide financial security for me and/or my family

22. Using a 5-point Likert scale, I asked respondents to rate how much they agreed with the following:
    a. My team and I agree on the strategic goals of the company
    b. My team and I agree on the short-term business objectives that should be considered the most important
    c. My team and I agree on the best ways to ensure the company's survival

23. Using a 5-point Likert scale, I asked respondents to rate how much they agreed with the following:
    a. Team members have a close relationship with each other
    b. Team members like to spend time together outside of work

c. Team members consider themselves personal friends

24. Using a 5-point Likert scale, I asked respondents to rate how much they agreed with the following:
    a. I feel connected to my company
    b. I feel accepted by others in my company
    c. People at my company are good at influencing each other

25. Are you currently working full-time with your Coworking Central company? (Yes/No)

26. On average, how many hours per week do you spend working on your Coworking Central company? _____

27. How many of those hours are spent working at an Coworking Central location?_____

28. Using a 5-point Likert scale, I asked respondents to rate how often they were at Coworking Central in the morning, afternoon, and evening

29. Before coming to Coworking Central, where did you work on your company? (select all that apply)
    a. Home
    b. Other rented office space
    c. Other coworking space
    d. Public place (coffee shop, library, university, etc.)
    e. Other _____

30. What is your job title?_____

31. Please self-describe your gender (Male/Female)

32. Please self-identify your race/ethnicity (select all that apply)

33. In what year were you born? (again, this will remain confidential) _____

34. Total number of years you have worked in/with startup companies:_____

35. Is this the first company you have founded? (Yes/No)

36. When was your Coworking Central company founded? (if no official founding date, when did you begin actively working on the business?)

37. How many people founded your company?

38. Did you move to the Triangle to start/join your business or team? (Yes/No)

APPENDIX C: INTERVIEW GUIDE

Date:_____ Respondent:_____

Researcher 1:_____Title:_____

Researcher 2:_____ Company:_____

INTRODUCTION (2 minutes)

A. Provide background of interviewer.

B. Discuss information privacy: All information will remain confidential. Information gained from respondents at one interview will not be shared with respondents at another. Further, in the write-up, all corporate and individual names will be changed to mask identities.

C. Ask permission to begin recording the interview. Recording interviews helps us capture all relevant points that we might miss. People, places, and figures are anonymized so identities are safe. Only researchers see data.

D. Outline the flow of the interview. The interview consists of these sections:

   a. First, I will ask you general background questions about your company.
   b. Second, I will ask you about your founding history.
   c. Finally, I will ask you questions about what it is like working at Coworking Central.

SECTION 1: BACKGROUND QUESTIONS (10 minutes)

TRANSITION: First, I would like to ask a few questions about the company.

1. Can you give me a quick overview of your company?

Prompts:	• Products/services provided: • Current stage of development: • Strategy or business model (customer painpoint, differentiated solution, profit formula, technology and operations strategy, market plan) • Traction (do you have customers, etc.?) • Growth plans (where do you expect the company to be in 1 year? 5 years?)

SECTION 2: COMPANY HISTORY (20 minutes)

2. TRANSITION: Thank you for providing that information. Now, I would like to ask several questions so I can better understand the history of your team. On the business bestseller list, there are books written about the important businesses (e.g., Google, Apple, Amazon, etc.). Pretend you are telling such a story about your company. Please focus *chronologically* on how your team was formed and how your company has evolved. I may interrupt you to clarify.

SECTION 3: COWORKING QUESTIONS (20-30 minutes)

TRANSITION: Thank you. I want to transition now to a final set of questions. Specifically, I'm interested in knowing more about your experience working out of Coworking Central.

3. Why did you choose to work at Coworking Central? What where the most important considerations? [Prompt: Financial concerns, making connections, productivity of employees, etc.]

4. What were your alternatives to working at Coworking Central, and why did you not choose those?

5. Hypothetically, if Coworking Central were to no longer exist, where would you work?

6. What (if any) are the advantages of working out of Coworking Central?

Prompts:	1. Connections (customers, investors, employees, mentors, collaborators) 2. New ideas 3. Feedback on ideas 4. Social support/friendship 5. Opportunities to gain publicity 6. Energy

7. What (if any) are the disadvantages of working out of Coworking Central?

Prompts:	1. Are you afraid about other companies stealing ideas, customers, employees, etc? 2. What (if any) types of distractions are at Coworking Central? [Prompt: Do you spend too much time socializing with others, going to events, etc.?] 3. If you could, would you change anything at Coworking Central? If so, what?

8. How different vs. similar are you to the other companies at Coworking Central, in terms of industry, stage of development, etc.?
   a. Do you wish that there were more or fewer companies like you at Coworking Central?

9. Have you collaborated with any other companies at Coworking Central? If so, how?

10. Has working at Coworking Central changed the culture of your company? If so, how?

11. What are people's reactions when you tell them you work at Coworking Central? Investors? Employees? Clients/customers? Overall, does working at Coworking Central help or hurt your image?

12. What would it take for your or your company to leave Coworking Central?

13. Overall, how would your company be different if you worked somewhere other than Coworking Central?

CONCLUSION

14. Did we miss anything? What other advice would you give to future entrepreneurs?

IMPORTANT: Ask them if it is ok to do follow-up interviews over the next few months.

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